

ENGINEERING HERITAGE AUSTRALIA

ORAL HISTORY PROJECT

TRANSCRIPT OF INTERVIEW WITH

SUE MURPHY AO

Interviewer	Doug Ayre
Transcriber	Mary Macfarlan History Development Pty Ltd
Date of Interview	14 November 2019
Duration	3 hours 7 minutes

NOTES TO THE READER ON INTERPRETATION OF THIS TRANSCRIPT

Readers of this oral history transcript need to be aware that it has been edited to meet the requirements of the interviewee and though it is a near verbatim transcript of the words as spoken during the interview there is some variation. The interview was conducted in the form of a natural conversation between the interviewer and the person being interviewed and the changes have been made to facilitate the flow of the document.

Much of what is said in such interviews relies upon the accuracy of the memory of the person being interviewed and readers should bear this in mind and judge for themselves how factually accurate the material is. The interviewer has sought to clarify or verify facts and statements made during the interview where this seemed appropriate.

The views and opinions expressed within the transcript are those of the person expressing them in the interview.

Please refer to the notes on the following page to aid interpretation of the transcript.

Note 1

The recording is in seven parts and runs for a total of three hours and seven minutes.

Note 2

Where the interviewer has used words such as 'Yes', 'Right' or 'OK' as an encouragement, but not as anything else then these words have not been transcribed unless they are relevant for the context. Commonly used habitual phrases have also been deleted from the transcript where appropriate.

Note 3

The interviewer has inserted occasional words (which are not in the original recording) into the transcript in order to clarify the context of what was being said. These words are shown in the form [they would say].

Note 4

Where a sentence has a series of dots in the text such as this indicates that the speaker paused, the recording was not clear enough to transcribe accurately what was said or the following speaker interrupted what was being said.

Note 5

The interviewer is referred to as 'DAA' in the transcript and to the subject speaker is referred to as 'SM' as appropriate.

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INTERVIEW TRANSCRIPT

Track	Speaker	Topic
1	DAA	My name is Doug Ayre the date is the 14 th of November 2019 and I'm interviewing Ms Sue Murphy on behalf of Engineering Heritage WA Branch at her home in Perth. May I call you Sue?
	SM	Of course.
	DAA	Thank you. Now I would like to start right at the beginning. Can you tell me your full name?
	SM	Well, I was born Susan Lee Wager and since 1985 I've been Susan Lee Murphy.
	DAA	Right, 1985, so how long were you married?
	SM	30 years.
	DAA	30 years. So, your maiden name then was Wager?
	SM	It was indeed.
	DAA	When were you born?
	SM	I was born on the 22 nd of February 1958 here in Perth. My Dad is an engineer and Dad has done one of these oral histories too. In those days Mum and Dad had married in 1955 and gone to England to work. Dad worked for English Electric in Preston and Mum was working as a hairdresser and they travelled round Europe - had lots of adventures - travelled round Europe on a motor bike, hitch-hiked everywhere, and then Mum was pregnant with me so that was the end of the adventures they thought [and] they came back to Perth to start a family. I'm the eldest child. Mum and Dad arrived back in Perth just before I was born and Dad got a job - he decided to do a Masters at UWA and he got a job working as a lecturer and doing bits and bobs at the university - to support himself while he did his Masters. He had some sort of scholarship.

Mum and Dad were living in a university house in Fairway, or one of those houses down near the university, when I was born. And then Dad stayed on at UWA and they bought a house in Daglish and so they moved to Daglish when I was about one. My brother was born a few months later so my brother's only 20 months younger than I am and then about four and a half years later my sister was born. So [we had] my brother Peter and then my sister Julie so there we are.

We're all fairly close in age and we were living in Daglish and Mum and Dad had renovated the house. It was an old house. It was a great place to grow up because our house backed on to a park. A lot of those houses in Daglish had sort of a weird triangular-shaped block and in the back was a park with swings and slides and tennis courts so when we were kids it was fantastic.

But when I was six Dad decided to do a PhD and he got a scholarship to go to Purdue in the US - Purdue in Indiana - so Dad packed up the whole family. His scholarship covered an airfare [but] he cashed in the airfare and we all went by ship from Perth all the way to San Francisco - which was Fremantle to San Francisco - a long time on a ship. I had just started Grade One and when we got to America Mum had a cousin who lived in California who'd been a war bride [and] we stayed with them. Mum and Dad bought camping equipment and a big station wagon and we drove across America to Indiana in the mid-west.

DAA That would have been a tremendous adventure for you?

SM Well it was a tremendous adventure for my parents more, I think. When you're little you just go along with what your parents are doing. My sister was only 18 months old when we got to the States and we would be camping [all the way] across. Mum would send me off to look after Julie to have a shower [while] she got dinner going. When you think about it, I was only six, so it was a quite ridiculous time but a great time to be in America. We were there for three years.

Dad and Mum had no money [and] Mum cut hair in the apartment. We lived in a tiniest little apartment, a little two-bedroom apartment. Dad had head-phones, ear-phones, to block out the noise so he could study and wrote up his PhD there and it was a great time.

It was the early '60s. We went in '64 and came back in '67. I guess that's the mid '60s but it was probably the peak of American affluence and excitement and optimism. Kennedy had been assassinated just before we went which had really rocked Mum and Dad. I very clearly remember that. But when we were there things like the Barbie doll was out and I had all these Barbie dolls and things and Mum and Dad were always worried that they were making us live in this tiny apartment and not running around and doing things outside like we would have done in Australia. So, they made us do swimming lessons which meant that by the time we got back to Australia we were better swimmers than half of our peers because Mum was so paranoid that living hundreds - well thousands - of miles from the beach that we wouldn't be able to swim.

They were also worried about the tiny apartment and Mum or Dad still has a floor plan. At school - in one class at school - we were asked we had to do a floor plan of our home and I drew this floor plan and it's got all these things like it's got a playroom and the playroom was actually a cupboard where our toys were kept. It had all these different zones albeit with no scale to show how tiny the whole thing was so Mum and Dad decided that perhaps I wasn't very scarred by being there.

We got back to Australia in 1967 and again we came back on the ship. We drove down to Florida with all Mum and Dad's worldly goods in a little trailer behind the car. [They] sold the car in Florida and got on the ship and I think it was seven or eight weeks on the ship back. Went through the Panama Canal, back up to the coast of the US and then across to Sydney, Melbourne, Adelaide and then Perth. My brother and I were really the only kids that were on the boat all the

time. My sister was too but she was only four but my brother and I [were older]. I had my ninth birthday on the ship so Peter and I were nine and eight and we had the run of the ship and we knew all the staff.

DAA You probably had a whale of a time?

SM We had a great time. The ship's quartermaster, a man named Jimmy Christie I still remember - he took us under his wing. He had children about our age back in the UK and was away at sea for long periods of time. He was the Quartermaster on a big P & O ship and he was great to us and we went everywhere. We were in the engine room and everywhere. We had a great time. [It was the Iberia] and in fact for many years after whenever the Iberia came to Fremantle Jimmy Christie would come and have dinner with our family.

DAA Really?

SM Mum and Dad, I think they were grateful that he was so kind to Peter and I and I think he really enjoyed having kids. I don't think there were that many kids on some of those longer cruises. So that was a great adventure.

We came back and went back to our house in Daglish and I went to Jolimont Primary for a year. Then Mum and Dad bought a block - a very small sub-divided block - in Dalkeith and built a house there and moved there. Dad had gone back to UWA and I moved to Dalkeith Primary School. So, I went to Jolimont, then Morton Elementary in America, then back to Jolimont, then to Dalkeith and so by the time I got to Grade 5 I'd had four changes of school. I was a bit shy in those days [and] I dreaded a new school but I stayed through at Dalkeith Primary then and had a great time there.

We lived diagonally across from the school so we could pop home at lunch time and all our friends would. Dad ended up President of the P & C at Dalkeith and very involved. Mum was involved with the library so the family were very involved with things.

Because Dad was an academic, he always worked at night and prepared lectures or did marking or something at night but [during] his days he could be probably more flexible than some of the other fathers. In those days' fathers didn't go to the running races and things as much and Dad was always at those thing so it was really quite good. But when we moved into the house Mum was not [well]. She was very stiff and she thought it was gardening and, you know, setting up a new house and building retaining walls and doing all the things that you do when you move into a house. But she was diagnosed at the end of [what] must have been about '68 or maybe '69 with a muscle degenerating disease and she was never really the same [again]. Mum died in 1983 so she lasted all that time but she was on very high doses of steroids - prednisone and cortisone – and it ended up that it was her diaphragm that was the muscle that was badly affected and she actually technically died of emphysema that had come [about] because of the poor diaphragm work.

So Mum was sick a lot - on and off - and quite restricted in her mobility which was kind of awful for her because Mum had played hockey for WA. Mum was a very sporty person and it really killed her [because] she just hated being dependent on others for doing things.

DAA What was your mum's maiden name?

SM Harrison. Judith Harrison. Mum's parents lived in Derby Road in Shenton Park and Dad's parents lived in Evans Street, no Gloucester Street in those days, in Shenton Park and they all went to the same Methodist church so Mum and Dad met at Sunday School as young teenagers. They got engaged on Mum's 21st and they got married in the January and went off to England only a few days after that.

DAA You mentioned you Dad was an academic and, of course, as we both know I've interviewed him but let's assume I know nothing about him. Tell me a bit about his profession and his topics.

- SM Dad well his PhD - I only know this now [but] at the time I had no idea. You know 'father he does something at uni - don't really know what'.
- DAA Well parents are always boring anyway [aren't they]?
- SM They are. So, Dad's [PhD] was on computing and numerical control machine tooling so [his] early work was very much about more industrial engineering. He'd worked at Chamberlain John Deere here and he'd worked at English Electric [in the UK] and he was very interested in manufacturing and the use of robotics and numerical control machining to get very precise shapes. If Dad was studying today, he'd be very involved with 3D printing and those sorts of things.
- DAA Because that would have been cutting edge technology in its day?
- SM Absolutely, absolutely. Well, computers were, you know, the size of office blocks.
- DAA Weren't they? Yes, I remember them well.
- SM Indeed. Dad was always very interested in everything and I had a blessed childhood. Then when I was [at] end of year or third year high school [which was the] end of Year 10 Dad had a sabbatical in the UK but he also had a series of conferences that he was presenting at so again he cashed in his airfares. We all flew to England, bought a camper-van, and we spent about three or four months travelling. Dad would go and do what he had to do so about once a week. We'd be somewhere in a campsite and Dad would have to put on a suit and go off and be an official and in between we were driving and learning and travelling.
- The whole family was squished into a very small campervan [and] I'm very close to my brother and sister which was either going to go that way or the other way.
- DAA You were physically and mentally very close?

SM Physically yes, which usually leads to you either being very close as adults or hating each other.

DAA Doesn't it?

SM No middle ground. So that was good and then when we got back to England we all started school and if I'd gone into my proper year I would have gone into a group of kids who were about to do their 'O-Levels' and the school said 'it's stupid for you to go in there', so they put me up into what was called Lower Sixth.

DAA That was 'A-Levels'.

SM Which was 'A-Levels' and I only had to do three subjects which I couldn't believe and so I did English Lit, Physics and Calculus which was great. I had a term there and everyone said if you didn't come back to Perth [and] if you missed the beginning of Year 11, Fourth Year it was called, then you wouldn't do well in your TEE. So, I came back and boarded and Mum split the time difference and stayed with Dad for half the time and then came home. Because of Mum's [medication] she couldn't have immunisations at all because she was on these immune-suppressant drugs. So, she flew to Singapore and had to get a ship down from Singapore and that counts as your quarantine in those days so Mum [did that and] so I boarded for a bit over a term at MLC. I had a scholarship to MLC and was there all through high school.

But it was quite good because I'd already done a term of Calculus and Physics and by coincidence the English Lit I did was even some of the same novels we were doing back here and, because when you boarded you had to do compulsory prep they called it, so every night after dinner in the boarding school you had to sit in a classroom and do two or three hours of supervised study. You could read a book, write, you could do what you liked but you had to sit there.

DAA You had to be there?

SM I did quite a lot of work that first term and basically finished my Year 12 - the whole course - and did really well at school in that year and then relaxed a lot more in Year 12. And still my TEE or whatever it was called then – ‘Leaving’ - was good. I got a Government Exhibition and did well at school. Everyone said ‘you should do medicine. Bright girls do medicine’. A school like MLC they expect it. I was Dux of School [and] they expect you to be [a Doctor]. Everyone was supposed to do medicine.

Mum kept saying ‘medicine would be so good because you could work part-time when you have a family’ and Dad said it would be really good to do medicine because when Dad had gone through school here in Perth at Perth Mod you couldn’t do medicine in WA and he had friends who’d gone over east to do medicine and Dad always felt that they looked down on him and that they thought engineering was somehow lesser than medicine. So, Dad thought it would be nice if I did medicine because I could, you know, look down on [Engineers]. I don’t know [how] other engineers [thought]. I have no idea.

But the thought of [it]. Dad is just such an engineer. He just is obsessed with how things work that I guess he could have been obsessed with how the body works he could have [made a Doctor] but I wasn’t even mildly interested in medicine. I applied for medicine at UWA because everyone told me to. I had got admitted and said ‘this is stupid’. In my final year at school I’d done maths - the double maths with Calculus – Physics, Chemistry, German and English Lit and in those days if you did English Lit you could sit the English TEE - you could sit the Leaving Exam - but I didn’t do the course.

So, I ended up with seven subjects and seven distinctions and did well in it all. I could have really done anything I wanted but I liked the sciences and I found maths and sciences quite easy so I thought I’ll do engineering and I thought it was a bit to annoy everyone because no

one was really pushing me to go that way. I don't think I really thought about what engineering as a profession was.

I looked at the first-year subjects which were Maths, Physics, Chemistry and Engineering 100, the generic engineering unit, and I thought 'well I can do all of those'. I'd ummed and ah-ed about Law as well and in those days to do Law at UWA you had to do your first year in another faculty so getting in to Law was not based on your school marks it was based on your first year marks at Uni and I thought 'well, at worst if I hate engineering but I do okay I can go on to do Law'. I wasn't really overly motivated. But I did first year and did well and then I did second year and did quite well and so I just kept going till I graduated.

Mum was getting very frail through this period. Mum was in hospital a lot and so I guess my sister and I had quite a bit of extra work to do. We had extra things because we were really doing a lot of household running although Mum was amazing at organising it all. But I also worked at a Chinese restaurant, The China House, and worked quite a few hours. There's a thing called the 'Gledden Tour' that UWA - I don't know if they still have it for engineering - which was originally to encourage or to get West Australians to go over east to see the big wide world of Australia. Then by my year it was going abroad and we went to the UK – specifically Scotland to see North Sea oil rigs and plants. The North West Shelf was just starting in WA. We went to the North Sea platforms and gas processing facilities and really saw how the North Sea oil worked which was a fantastic opportunity because it was like I say North West Shelf was just starting here in Western Australia.

DAA They were some of the first in the world as well, weren't they?

SM Yes, and there was some amazing stuff going on. So that was amazing. When I came back from there, I'd also applied for a Clough Scholarship because that paid you money in your final year at uni. The Clough Scholarships were started by Harold Clough in about

1973 to really get first pick of the graduates and they used to just have one or two scholarships a year and they came with an offer of a job at the end of your course. Everyone said 'Clough don't want to take any graduates because they've given the scholarship to a girl and a girl won't want to do construction, a girl will want to do design or stay in a nice office'. So, I guess I had the scholarship at Clough and I knew lots of people who worked at Clough because I had friends a year or two older than me who had Clough scholarships and had worked there.

Clough used to have drinks on the last Friday of every month that I'd get invited to. It was a small company then. I think we had 32 engineers so I knew everyone and really enjoyed it. When I got to the end of final year I wanted to join them. During that last year at uni I could cut my hours in the waitressing back because I had the money from Clough and then everyone said 'you should apply for lots of jobs and see what's going'. I did apply. I applied for jobs. I got lots of interviews because people were a bit curious at what 'a Sue' looked like. I was the only girl in my year by then and I was President of the UEC- the University Engineers Club - which in those days was a very sexist drinking club but there'd been a

DAA You're not telling me it was male-dominated, are you?

SM Well, there weren't any women to be in it.

DAA It was a male enclave then?

SM Pretty much, but the Guild at UWA was so appalled at the male domination of the engineering faculty that they cut off the funding to the Engineers Club [and] so I ran for UEC President on a platform of 'if you've got a woman running the UEC they have to give us our money back'. We used all our money for beer for parties so I ran on a 'I can bring the beer back platform' and was unanimously [elected and] very easily won.

DAA You would have been very popular?

SM Yes. It was good fun - my student politics and I've always been bossy so I led at those things. So that was all fun. I applied for lots of jobs and got lots of interviews because people were curious to see what 'a Sue' looked like. I think. I had quite a few job-offers but I chose Clough in the end probably without really knowing what [they did]. I don't know that I truly understood what they did or what I was doing. I just I knew the people. I'd met them all through the year and I really liked the feel of the place. The people were very nice and I thought 'oh, that'll do'.

I was actually way more worried about what I was going to wear. I wasn't sure. 'Do I have to wear like construction clothes or do I wear business clothes and how dressed up to be'? Worrying about what to wear is my recurring default worry.

DAA Is it really?

SM First day at uni I worried about what I was going to wear. All summer holidays I planned what I was going to wear whereas I don't think the boys that were in first year uni [were concerned].

DAA I wonder where that came from?

SM I think it's 'controlling what you can control' and you want to make the right impression and look the part. Girls of my generation are always bought up that you're supposed to look the part and be nice.

DAA Oh well I'm sure that's right. That's my memory anyway.

Alright let's just stop there Sue and we'll just have a break.

2 DAA Okay, so, you'd chosen what to wear?

SM Yes. I chose what to wear and I went into Clough. They were in Mount Street in those days in that old building and that was the 1st of February in 1980 [which] was my first day at work.

DAA How old were you then?

SM 21, almost 22. I turned 22 a month after I started.

DAA So, you had what degree?

SM Bachelor of Engineering with Honours. I did Civil. I did Civil Engineering and I had got Honours.

DAA Civil Engineering with Honours.

SM Then I rocked up to work. My then boyfriend, the boy I'd gone out with in uni, he had done Mechanical Engineering. Outrageously he had failed Dad's unit which I'm sure he did just to be just to make a point of it, but anyway. But he had a job with Hamersley Iron and he went up to [the North West]. He was working at Parker Point in Dampier with Hamersley Iron and he started work the same day I did as he'd flown up the night before.

I was feeling a bit sad when I started at Clough and when I started I said to all the people at Clough 'I'd really like to get up North so if there's any jobs going in Karratha or Dampier in the Pilbara I'd really like a job because that's where my boyfriend's working'. And they said oh 'yes, yes, yes, yes, yes, yes. No, no. I don't think we need to send you up north. I think you need to stay a bit around here'.

The first job I did was Subiaco Oval - the three-tiered grandstand. Clough had just won the job. It was a 'construct only' but we had very good engineers in Clough. We'd redesigned the grandstand to be built - instead of in-situ - to be built in precast with the concept being that we could build it all off-site very quickly in a couple of pre-cast yards and then put it together very quickly and finish the job much earlier than the schedule. The schedule was, I think, to have the whole thing finished by about February. We were going to get it finished by the October before that so that - or the September before that - so that the final round, the finals, could be held at Subiaco Oval which meant that WA Football Commission got more money. This is before the AFL when it was all WAFL

So, my first job I did was working with one other person to redesign the whole thing to make it be pre-cast and doing all the joints. I

remember panicking and thinking I had to do everything and thinking 'oh my God. I don't know how to do this' then a blessed realisation that you actually work with lots of people and you don't actually have to do everything [yourself]. And then I ran the pre-cast yard where we made all the sections and that was great because I'd detailed all the joints. They had a lot of steel in them and when you're pouring the concrete the guys would say 'this is such a stupid design, this is really hard to get the concrete [poured into]'. So, I learnt so much. There's nothing like designing something and then immediately working on it being built.

Then I was at the Subiaco Football Oval putting it all together and erecting it all and we finished it. Literally we were painting the night before the Finals - we even had the office secretary, the office courier, we had everyone out there painting the seats because in those days they were just timber slat seats. We painted them because we figured a few dry-cleaning bills was cheaper and we could cover those because we got a bonus. I can't remember I think it was half a million dollars which was a lot of money then for [being] finished at this accelerated time.

That was my first job and then I worked on some projects down at Worsley, Worsley Alumina.

DAA What did you do down there?

SM I did the red mud and the green liquor piping. I still remember [it being] very colourful - very Christmassy - red mud and green liquor. We had big civil packages including piping [but it was] the underground service packages that we were doing. I kept saying at work 'I really, really want to go up north' and they kept saying 'no, you don't know, you [really] want to do all these other things'.

About a couple of years later I'd been down at Worsley - not all the time [but] coming and going - I was doing quite a bit of estimating [and a] bit of design. I was still running the pre-cast yard. Clough kept the pre-cast yard. We'd had it for a long while and we were still doing

pre-cast bridge beam units for Main Roads and things like that so I was doing [work at] Welshpool and in the office.

Then we won a very big job in Whyalla to build the jetty for Santos. It was at a place called Stoney Point but it's now called Port Bonython. Clough had done a lot of jetty work. Clough had built a lot of bridge work and a lot of jetty work and when I first joined the company, they were building the Mount Henry Bridge. The bridge team and the jetty team had a lot of similarities because it was piling and spans really. We built the Cape Lambert Wharf, we built Parker Point jetty and we built Cape Cuvier jetty, so the company had built quite a lot of jetties.

DAA Alright, now, just before we go any further. How did you handle things like corrosion then?

SM On the jetties?

DAA Yes.

SM Well, the piles were painted down [below the water level]. The piles when you drive them in are painted down to maybe [as much] as five metres - or three metres depending on what the water depth is. It depends on what they were. The ones we were doing were mainly concrete decks - precast post-tension concrete decks - so they're concrete and then there's cathodic protection on them all as well.

DAA Okay. Just diverged a bit there but [I am] always interested.

SM The jetty that we won was for Santos in Whyalla, that's in South Australia. It was 2.4 kilometres long so it's a very long jetty and very massive jetty with 24 metre spans. I was going to build the [concrete structure] so off we all went. I'd just about given up going up north by now [and] we all went off to Whyalla.

My job was to do the all the concrete works so I was running a big [project]. We were precasting the jetty units and I had to build 100 all slightly different 24-metre-long precast concrete units that weighed nearly 140 tonnes each. Very big units

And so, I set up the pre-cast yard and we had very sophisticated reusable steel formwork [structure]. We would steam the concrete to get the strength up quickly so I got my 'steam operator's ticket' for South Australia and managed and ran the steam plant. We had a set of boilers to steam it and we also had an off-shore batch plant because the dolphins, the dolphin berth, had piles [which] came into a concrete top and we were batching concrete on a barge out at sea to pour those. I did basically pretty much all the concrete on the project.

Now Whyalla was just hilarious. We had been led to believe that it was an industrial town [because] it's got the steel mill and it's got the smelter and the ship building but it isn't. There's not much there and when we got there, we realised very quickly we would have to bring plant and materials over from WA or from Melbourne or Sydney. So, my second day in Whyalla I went to the one hardware shop in Whyalla, 'Bob's Cash and Carry', and I bought all their timber. It was hilarious because Bob said 'you're such a little girl why do you need all that wood'? It was just bizarre and that was just to tide us over until we could get proper trucks [with] proper loads of [formwork].

It was a great. The Project Manager Jeremy Robertson was about 31/32 - this was 1980 – [and] I was 24/25. We were all very young. All the Section Engineers we were all under 30 and we had enormous responsibility. Rob Jewkes who later became Clough's COO was running the marine works plus a small team of other engineers, surveyors and supervisors who all became really dear friends. We worked so hard. It was a great job. We were all in these little one-bedroom apartments and it was a joint-venture with the Dutch Royal Netherlands Harbour Works so it was 'Harbour Works Clough'.

Royal Netherlands Harbour Works had had long term partnerships with Clough. They'd built Parker Point Jetty way back in the early '60s together so it was a very long-standing relationship but the Dutch guys are really cheap. Anyone who thinks Scottish people are cheap hasn't met anyone Dutch. It was so funny. There were three of us in

three one-bedroom apartments close by each other and the Dutch guys bought us one of everything. They bought a dinner set so each of us had one knife one fork one plate one spoon one cup for the three of us and then there was a spare. We had one saucepan set between us. One of everything that was all we had and so we used to take turns cooking and whoever's house it was you'd give them all the stuff and then you'd get the extra knife and fork and plate and the plate and the saucepans and then we'd move on. So, if I cooked tonight everyone would come to my place for dinner and then I'd give them all the cutlery and crockery and that would go to whoever was the next night. It was ridiculous.

But we sure worked. In those days the rostered days off had just started and every fourth Monday was a rostered day off. We would work seven days a week but every fourth week we'd get the Saturday, Sunday, Monday off when there was a rostered day off. We only got flights back to Perth every six weeks. We got a long weekend every six weeks so when the rostered days off were on we would all make sure we went somewhere as a group. We hired a houseboat on the Murray once. Went up to Waikerie a whole group of us. We had a charter plane and flew up to Alice Springs, went to Ayers Rock [and] climbed Ayers Rock, I'm ashamed to say, but no one even intimated in those days that that was culturally inappropriate.

DAA No. That's what you did.

SM We went down to Port Lincoln to the Tuna Festival. We went to the Flinders Ranges. Any time we had the two or three days off we went and did something, so it was great. But at the end of that project I came back to Perth. I'd only been back in Perth a short time - I got back to Perth in the end of or middle of January - when Mum died at the beginning of that March. Mum had been going downhill a lot and that was pretty awful. Dad kind of fell apart and I'd bought a house along the way so I wasn't living at home anymore. I was living in Maylands in a house I'd bought and only my sister was living at

home. My brother was about to get married and go overseas to work. Peter moved to England and didn't come back for 20 years. He came back for holidays but he basically never lived in Perth. He never lived in Perth again. He came back to live in Sydney much later.

But Dad was not in a good place because Mum and Dad had gone out together since they were about 14 or 15 and he depended on her totally. They were both just 50 when she died. They were very young.

DAA A big part of his life?

SM Big part of his life. Dad was a bit lost and then I had to go to Sydney. It was only for a three-month job. We were doing some concrete repairs on some tanks at Botany Bay oil refinery there and Dad came and stayed with me in Sydney for a bit of a break. He visited me in Whyalla too. I'm probably closer to Dad than my brother and sister and I started to get a bit worried that Dad was going to be living with me and what was I going to do with Dad. It was sort of a bit of a [dilemma] because Dad was really very lost.

Then Dad met Coral. Dad was on the School Council at MLC - because I'd gone through MLC - and Dad's always good at those things. He was a good speaker and a good President. Dad had met Coral then through MLC. Coral was older than Dad - about seven years older than Dad - but they fell into step and I think Dad was very nervous about being on his own. Dad and Coral got married a year later. So that was good for Dad in a way and they had some very happy times in the early years and then, sadly, later Coral got dementia so the last years were not easy and then she went into care so Dad's had a [rough time and] the last few years haven't been that great. Coral died earlier this year but in the early years that was good and Dad and Coral had sabbaticals overseas and things.

But 1983 was not a good year because Dad was lost. It was my sister's 21st and Dad had no idea what you should do for a 21st so we

organised all that. My brother got engaged at that stage and was just about to go overseas it was all a pretty crazy time really.

But then Clough said to me 'you've been banging on about going up north for years and years and years, we've got this big job coming up in Karratha for Woodside. Do you want to go up north?' And by then, all through that time, I'd sort of been going out with the same guy who was still in Dampier but he'd been transferred. He got transferred to Perth the week they sent me to Karratha.

DAA That would be right.

SM That was pretty much the end of that relationship so that was like the stake through the heart. So, he (Mato Delich) went off. He joined Argyle after that and went off to Antwerp, to do diamond things. He was a mechanical engineer. And sadly, Mato died of cancer the year we all turned 40 and that was very sad.

But I went up north and that's where I worked. We were doing Phase 1 of the Woodside LNG jetty so it was pretty much the same team who'd been in Whyalla. It was still Harbour Works Clough, same Dutch guys, same Australian people, so we were quite a good little marine construction group. Phase 1 of the jetty was to build these great big dolphin berths but not the actual jetty. They just had a pipeline because [for] the early stages of the Woodside LNG wharf they were only sending condensate out not the liquefied gas.

DAA Okay I'll just stop you there now. You've mentioned a dolphin berth a few times. What is a dolphin berth?

SM Well, you know when you've got a jetty? Jetties are actually quite flimsy so when a ship is moored and comes in to moor at a jetty what you see next to it is you often see these structures. They're a bit lower and they're not joined on to the jetty so you might have three or four piles with either a big bit of wood if it's a small jetty or a big bit of concrete on it so when the ship hits the fender that's where the fenders are they can move without damaging the jetty because if a ship's

moving with the tide or hitting a jetty it'll collapse. The jetty's just to get things out there and the dolphins are very strong structures but designed to be very flexible as well so they take the load.

We didn't build the jetty itself in this phase, we just built these things with fenders on - whopping things with fenders on - and then there was a pipeline for the condensate, the natural liquids. Then Woodside were going to come back later when they'd built the whole gas processing plant in order to add on equipment like all the things to make it really cold to liquefy the LNG because the LNG's at -200°C or something. It's a very much more volatile and much more difficult thing to transport than condensate which is just like a light-fraction oil.

My job was building the submarine pipelines out to the end of the wharf. We had a whole series of pipelines that had to be pulled out and we had an arrangement of barges to pull them out. They all have to be coated with a heavy concrete coating so I ran the pre-cast, the coating yard on the beach and then did the pipe pulls.

DAA Why did they have to be coated?

SM So that they sank [and] stayed on the sea-bed. What happened was we had a plough which made a bit of an indent in the sea-bed then you pull out the pipeline with big floats on it and then you take the floats off - clip the floats off - and flood the pipeline and it will sink into the sea-bed. Then we had a series of barges and you dump rock of various sizes on to protect it and to hold the pipeline in place. I had barge crews and I had a crew of divers working for us because you need divers to cut the floats and inspect everything.

When I was working on the land in the Burrup in those days you had to wear - you didn't have to wear long pants in those days or long sleeves - they were still short sleeves and shorts. You could wear shorts but [you had to wear] steel-cap boots, hard hat, safety glasses. All that stuff. But when we were working off-shore on the vessels with the divers, the divers when they dived because it was really hot,

they would just wear overalls in the water and when they got back up on the deck [then] they'd just wear their Speedos. So, I was 26, on a boat - a little boat - off the coast of Dampier with a diving crew of six super-fit divers in Speedos and I've often said 'if you put a young man at sea with all these really gorgeous girls in skimpy bikinis would you expect them to concentrate on the pipeline profile?' But anyway, I fell for one of the owners of the diving company and we got engaged.

DAA Did you?

SM Well the job went well. The job was all fine but I ended up married. I got engaged and then got married to one of the partners of the diving company. Spud. Colin Murphy his name is but everyone calls him Spud and I only ever think of him as Spud. I was living in the construction camp, Hearsons Cove, when I first went up there and then I moved in with Spud and the boys. All the divers were in one big house and it was good.

We had a really good time in Karratha. Karratha was a pioneer town in those days. Fruit and veggies came up twice a week in a truck and if you weren't there quickly you didn't get fresh fruit and veggies. We worked all the time. We had the odd day off but not very often. If we had a day off [then] we'd go out to the islands in a boat. I knew Karratha and Dampier pretty well because all those years I was going out with Mato who was living up there he had a place on Malus Island so we used to go out to the islands a bit. So, I was used to boats and [the islands].

DAA Because Dampier was first wasn't it?

SM Yes, Dampier. Dampier was a Hamersley town and then Karratha was built as a Regional Centre really. Then when Woodside got going Karratha grew and Woodside houses were there and by then Hamersley houses were there and Hamersley's now Rio Tinto.

DAA Right. Now you're a civil engineer, aren't you?

SM Yes.

DAA You might be able to tell me this. Why did they build the town of Karratha on the lowland?

SM No idea.

DAA I've never really understood that.

SM Well it doesn't really flood.

DAA Doesn't it?

SM No. It's a fair way back from the inlet area.

DAA I was just thinking of cyclone floods and this sort of thing?

SM Yes. No, I've never seen Karratha flood. Plus, it's got the great big drainage system, you know, that huge drainage system. In those days it had all those cul-de-sacs when it was set up and so if someone had had a few too many drinks and they were trying to walk home you had to stay on the footpath because if you went cross-country [with] those huge drains you'd go down a three-metre drain and you'd know all about it.

DAA You'd never get out?

SM No. We had a good time in Karratha and came back to Perth at the end of 1984. Spud and I were both sick of being in the hot Pilbara so we went to the US and had three months holiday. We had a camper-van, drove up round Banff and Jasper in Canada and then down to Mexico so we drove round the States for a while.

DAA You still had the travel bug then?

SM Yes. I've always had the travel bug. We had a good time. Came back here, got married in early 1985 and set up, well, Spud ran an offshore diving company. In those days he had set up a diving [business]. He had been a Navy Clearance Diver. Joined the Navy at 15 and when he got out of the Navy with a mate, who was from Perth, they had set up a diving business. They'd both been Clearance Divers in the Navy. His mate Anthony Miller aka Dusty - Spud and Dusty - they both got

a stupid name from the Navy they came over to Perth. They were great adventurers. They came over to Perth and they drove over in a Mini Moke with a shotgun strapped to the roof.

DAA A Mini Moke?

SM Yes. Ran out of money at Southern Cross so Spud had left his watch with some bloke in a petrol station who gave him a full tank of fuel and then he sent the money and the guy sent his watch back. Adventures galore. They'd come to Perth and they'd set up. They started with a dive shop, teaching diving to anyone who wanted to learn to dive and then they bought a bigger vessel and started doing more construction diving. They had a charter boat that they used up in the Montebellos out of Geraldton for years taking dive charters out. They'd set up a company called Contract Diving that had done the diving on early Woodside work in the northwest.

Before that job they'd done little bits of construction work up there. They'd done some stuff for Woodside on the early trunk main for Woodside and they were living out of the dive school - the Dampier Dive School - which was a tin shed on the beach in Dampier and they were living there. But by the time they won that work for Harbour Works Clough that was a real project so they rented a proper house and had the divers in a proper house.

So, I met Spud. They had lots of crazy schemes, lots of boats and barges and all kinds of things going on. I had a house in Maylands and he had a place in Fremantle and we sold them both and we bought a place in Nedlands and Spud and I renovated the place. Spud was working off-shore a lot in those days and I remember I was doing the renovation but I was living in the house and he was away. He was up north a lot of the time and I'd taken the roof off the house and it had a big tarp [on the top] because we were putting a second storey on so I was basically living in the lounge room of the house. I had my bed, the double bed, a fridge, and microwave, and a kettle, and a TV. You

could microwave your dinner, make yourself a cup of tea, get a glass of wine out of the fridge, sit in your bed and watch TV. It was perfect.

DAA Sounds good.

SM But I wanted to be able to see the tarp because we had very elaborate ceilings and I wanted to see if any water was coming through. It was ridiculous doing it. I was doing building work by then at Clough and so I thought I was great expert at managing building. Did the whole extension.

I remember one night when there was a big storm coming through and I was really scared climbing up on to the roof making sure that the tarp was lashed down and I rang Spud and said I think it's okay [but] I'm really worried about it and he said 'oh, off to a barbeque, see you later!' He was up in Karratha in the lovely heat and didn't even [react]. I don't think he could imagine it all. But it all got done.

Clough then, when I came back, was growing very quickly. We had our estimating systems that were a bit fragmented so I helped set up proper estimating systems for the company. Harold had done a land-swap deal [with] the old Loreto and John XXIII schools in Claremont and Peppermint Grove. They had bought some land out nearly across the road from the Shenton Park Wastewater Treatment Plant. They had bought some land there to build a new school - John XXIII - a co-ed school and Harold did a deal where he got the land where the old schools had been in exchange for building the school. So it wasn't a cash transaction and a guy I worked with for many years, Joe Azzam - a great guy - Joe grew up on Palestine - he was brought up a Christian in the Gaza Strip neither Jewish nor Islamic in the Gaza Strip so he's the best negotiator you'll ever meet and he's the second oldest of 12 kids so he's a very, very, good negotiator.

DAA He probably had to be good to save his life?

SM His stories are amazing. But Joe and I were working together on doing this building work [and] we had to build John XXIII College.

We had an architect who was a great man of vision, Tony Brand, who was wanting everything to be absolutely perfect and we had a client who said 'you bid to build a school, it's still a school there can't be any variations' [but] they were adding whole new classrooms and still saying 'still a school', so it was a very stressful job.

I got married in March 1985 and that was when Joe and I were co-building this work. Joe's wife had their third child and the deal was either I could have a honeymoon and take Joe's kids with me because his wife was in hospital or Joe could take the time off and look after his kids and I didn't get a honeymoon. We got married on the Saturday, I had the Sunday off and was back at work on the Monday so I always blame John XXIII for my lack of honeymoon but it wasn't really a problem.

I worked at Clough then and did lots of little jobs. I did lots of projects, a bit of travel, spent a bit of time back on the east coast not long - coming and going. We were both busy. Spud was working off-shore a lot. Then at the end of '87 I got pregnant and in June 1988 I had my first baby Laura and she was born with hydrocephalus and only lived for two days. We had no idea there was anything wrong with her. It was just devastating. She was big, she was nearly nine pounds - eight pound eleven [ounces] or something - and because she had so many problems, she was born in King Edward [Memorial Hospital] and they took her to the special nursery they have at Princess Margaret [Hospital] where they do special tests. They couldn't fit her in the special little crib they've got for moving them because most babies with problems are 'premmie babies' [and they are] all very tiny. She was a great big healthy-looking baby but she had everything wrong and only lived for two days. So, then I probably 'got a bit crazy'.

DAA Hang on a minute. That must have been fairly hard for you?

SM It was terrible. I was very upset. Up until then my life had always gone well and things just always worked out but this was just awful. I

probably got a bit obsessed with having another baby. Spud had done - in those days they did - a lot of what they called 'saturation diving' where the divers go and stay in a [pressure] chamber for a while. He was running his company and was doing quite a bit of this and what they were doing is the guys who worked in saturation they have to be trained almost but not quite up to being an ambulance paramedic but almost. They have to be trained paramedics because if something happens you can't get someone [in] there so they have to be able to do all the medical procedures with talking to a doctor on the surface.

Spud loved all that stuff and after Laura died, he was due to go to Adelaide Hospital to do a six-week paramedic course and so I went with him for that and I was off work for a bit. Then we went to England and had a bit of a holiday and came back. But all I wanted then was to have another baby and I got pregnant pretty well straight away and Elizabeth, my eldest, was born. Laura died in the June and Elizabeth was born the following July so quite soon after.

I had thought I would work part-time but I didn't like being at home. Elizabeth was a very easy baby, she slept well, was no bother and I was a bit paranoid probably. First baby and first child at home you're always paranoid and having lost Laura I was really in a bad way I think. Not in a bad way - I was just paranoid.

DAA You hadn't had the experience, had you?

SM No. None of my friends around that were in Perth had babies at the time and I thought it was really boring. I had nothing to do. When Elizabeth was about five or six months old, I got a call from work that they were doing a job down at a jetty - some repairs on the Alcoa Jetty in Kwinana - and they needed someone to have a look at things. So, I said 'well I'll do it'. What they wanted was someone to go in the mornings like a half-day every day as [a person wo] can sign off all the time-sheets and sign off what was going on and inspect.

A family friend of my Mum's, someone I called Aunty - you know when we were kids you didn't call grownups by their first name so

Mum and Dad's friends, we called them aunty and uncle. Aunty Maureen, who was Mum's friend, Maureen's daughter was doing nursing and had decided she didn't want to do nursing. She had decided this about a day before the exams of her first year so the family were all in a flap about what Melissa was going to do. So, she came to babysit for me while I just did a little bit of work for Clough. It was only supposed to be for four weeks of four mornings a week. [But] I did that and Melissa she was a natural and she swung into action with Elizabeth and looked after her beautifully.

I'd been pretty bored at home so I went [back to work and] started to do more and more work and Melissa just started looking after Elizabeth more and more. Then along the way after six months later my cousin Kerry - who's my Mum's sister's daughter, Kerry Sanderson who's most recently been the Governor - but Kerry in those days was running Fremantle Port. Kerry had just had a second child and there was a big gap about seven years. Jared her older boy was at school and she had baby Jason also needing a nanny.

They lived in Tyrrell Street and at that stage we were in Vincent Street so we were physically quite close. Kerry knew Aunty Maureen too so Melissa started looking after Elizabeth, my daughter, and Kerry's son and they'd do a couple of days a week at each house. Then I had a second child. I had Cath and so Melissa had the three kids and it was great because my kids call Melissa's mum Aunty Maureen too. Melissa's grandad was in a wheelchair and she'd take them all out. There'd be kids and there'd be grandad in the wheelchair and kids in prams and you put the baby on grandad's lap and take them all to the shops and the kids [loved it]. It was a very easy and Melissa was very flexible.

If I had to travel - because Spud was still working away a lot [and] if I had to do a really lot of travel for work - Melissa would just take the girls home. It was fabulous.

DAA It strikes me that having access to somebody like Melissa was very important though?

SM It was critical because it was really [like] extended family and it was great. So that worked really, really well. The girls were happy everyone was happy. I was working hard, my career was going well, everything was good and that was all fine and I was doing more and more senior roles.

Then, around this time, Clough was really growing very quickly.

When I joined Clough, we had 32 engineers. By the time Elizabeth was born we had about nearly 232 engineers.

DAA Good heavens.

SM Massive growth in the company. We had a big operation - we bought a company called Petrosea in Indonesia who were working in Papua New Guinea - and there was a lot going on.

DAA Okay, let's just stop there.

3 SM With all the growth in the company previously every project manager was like a God, they set the people rules and we'd had a few problems. We were struggling to recruit fast enough for the work we needed especially blue collar and also there were people [where] there would be different site agreement. On one project you might get a 30% allowance and somewhere else you might get a 20% so people in-house were getting a bit grizzly that it wasn't consistent.

Peter Knight was our CEO at the time and I'd complained. I'd been quite vocal about how well we needed to look after our people and Peter called me in and said 'well, put your money where your mouth is. We've advertised for an HR manager and all we got were these ghastly personnel people who don't know anything our business. I want you to run HR and set up the business.' So, for about a year I set up all the systems and the processes. I didn't know anything about HR but a lot of it is common sense. I set up a recruitment system, set up

all [sorts of systems] and that was really[interesting]. I really enjoyed all that and that worked very well.

I'd been running HR for about 18 months I guess, maybe two years, I was on the board of Clough Engineering because it was really clear that without some people focus we weren't going to get anywhere and then I accidentally got pregnant and had my youngest baby who's now 24 and still living here – Lexi – Alexandra. Lexi was born in 1995. At that point when I'd had the older girls - when I had Catherine and Elizabeth - I only had six months off then I went back a bit part-time but by the time I was having Lexi, by then I was running a big part of the business and the childcare problem was as much Clough's problem as mine so they were panicking about what was going to happen when I had this baby – 'how was I going to keep working' because there was no one really to backfill what I was doing so I only took six months off when I had Lexi.

But that worked quite well. Spud's company had expanded too and they were doing a lot of work with a company called CanDive out of Vancouver so when Lexi was only four weeks old the whole family flew off to Vancouver, bought a camper van and travelled around America again. Did what we'd done before.

DAA In a camper van?

SM Yes, well we had different [arrangement] not a camper van as such. We had a big car and we stayed in motels. The big girls were six and four and Lexi was a tiny baby but in America every motel room has two double beds so we put the big girls in one bed and the baby would sleep with us. In restaurants in America people eat their dinner at, like, five thirty or six o'clock. Everywhere gives you colouring in materials and the serves are so massive. We found that it was really easy to travel with little kids. Lexi was an easy baby and I just kept breast-feeding her until we got back.

We travelled for six months, got back here and then I went back to work. By now Melissa, who'd looked after the big girls - the big girls

were both at school - Melissa had had a baby, was pregnant with her first child and when she got pregnant, she's one of those people that's allergic to her own babies. She had two babies. The first one she was really sick [and with] the second one she was in hospital the whole time and went into cardiac arrest. They thought they were going to lose her. It was just terrible. She weighed something like 10 kilos less on the day she gave birth than before she got pregnant. She was just skin and bone. The only thing she could keep down was Coke. I always remember that those gorgeous girls now but they were grown on Coke.

So, Melissa wasn't able to look after anyone so I found a day-care. It was called family day-care which is someone local who has a few kids in their house and it was a lady named Leisha who lived around the corner. She looked after Lexi and she had a couple of other kids and she picked my big girls up from school. She lived only a block from the school the girls were at so that was working quite well. Then Leisha got pregnant and she wasn't going to be working anymore but her sister, Beth, had a little boy the same age as Lexi - they were only a few days apart and Beth, her partner was a bit unstable, so she was working out what to do. So, Beth became a nanny. Lexi, my youngest grew up with Jakob, Beth's son and they're less than a week apart. Lexi and Jakob are like brother and sister and that meant that although I've got three girls Lexi grew up much more of a tomboy than the other two girls because she'd kept up with Jakob all the time. Beth looked after them and again it was just like Melissa. She'd pick kids up from school and if there was something wrong, if there was any crisis, if I was stuck at something [then] she'd take the girls back to her place. It was just a joy. Beth is still a good friend and Lexi and Jacob are still close friends. It has been wonderful. I've been blessed.

Once Lexi started school, and got a bit older, I used to use uni students for after school pick-up and I quite like that because you get a variety of girls who are studying, aspiring and actually doing things and I think it models quite good behaviour for the girls. Then when

the girls got a bit older, when they were older, we didn't need babysitters but I spent probably half my salary on babysitters for quite a few years.

DAA Well it's an important factor isn't it?

SM Absolutely. I used to laugh that you can depreciate your briefcase as a tax deduction and you can work perfectly well without a briefcase but there was no tax relief for child-care and there was no way I could work with a houseful of kids. But anyway, that was all good.

Harold was a wonderful boss, Harold and Peter Knight. Clough were great so, every time I had maternity leave they'd let me keep my car which was fabulous and in the end my car was a work car but it was a station wagon with a back row of seats and I could put lots of kids in. So, it was good.

Spud and Dusty bought and sold businesses along the way and he sold Contract Diving. They sold it to an American company who wanted to work in Australia and then that company got taken over by an Italian company that was already working in Australia so they paid the boys to go away and then this is when my non-working life got really crazy. Spud bought a winery down in Pemberton with his business partner and they had a share in a flying school so we had a little six-seater Cessna and we would fly down to the winery on the weekend. We were making wine and pruning grapes and had three little kids and I was working full time for a multi-national company and I was on their board as well as an executive director so it was pretty manic. Clough listed on the ASX along the way which was an interesting time because going through listing a company is always interesting. So, it had all been pretty [full on].

DAA What year was that Sue?

SM When we listed?

DAA Yes, when they listed.

SM I can't [be sure] - no, no, no it must have been about '97 or '98.

DAA And that's the time when you had the winery as well was it?

SM Yes, it was quite mad. Anyway, then because Dusty and Spud weren't allowed to work in the diving in the off-shore industry for I think it was 18 months.

DAA This was a constraint from the new owners?

SM Yes, the new owners because they'd paid them out. But then when that time ran out then Spud set up another diving company and built that up and he sold that in a few years too and then he set up another one. He's basically sold the same company three times. But he was busy and doing well but not travelling as much by then which was good and I was really busy at work but then things at Clough started to get [shaky].

After Clough listed the stock market requires year on year, quarter on quarter, growth but construction isn't like that. In a construction company at any point in time you've got one project that's a disaster, one project that's making a lot of money and everything else is about break-even. We had some projects that were losing money and the stock market didn't like it and Harold wasn't very tolerant of the Advisors. He kept saying 'I'm not going to let some pimply-faced youth tell me how to run my business' because a lot of the Brokers and Advisors were very young. But he was wrong. He should have. He had to listen to them or he had to engage more.

It was a bit like what happened to Multiplex when John first floated Multiplex he also kept [a personal interest]. Harold put his own money in. Harold was fantastic. He is a great bloke, fantastic bloke, and been a great mentor to me but Harold kept [his involvement]. Anyway, the stock market didn't really like what we were doing.

DAA It's a big transition I suspect when you go from a personal company to a listed one isn't it?

SM I think so. We had Clough Engineering which I was on the board of [which] was the operating company but the listed entity was Clough

Limited. They got independent directors in for Clough Limited who, some of them, didn't really understand construction.

Then Harold got quite sick and for about nearly a year he really wasn't around and around that time there was a lot of change going on. Harold's son Jock was de-facto chairing the board through that period. They brought in a couple of new people into Clough, I won't give you their names, but they really didn't understand construction either and they all panicked a bit because they saw projects that they didn't think were going well. Everyone kept saying 'look, you get to the end and then if you've done a good job you work with your client and get your claims, it'll be okay' but they didn't believe that. So, things were very fraught.

Peter Knight had retired as CEO. He was there for the float and then retired. Brian Hewitt was running the company. The stock market wasn't very happy with Clough and our board weren't very happy with us and Jock and the Clough family were unhappy and at that stage they were still the major shareholder. They had more than 50% of the shares, the extended Clough family. So, Brian resigned and they were looking for a new CEO

Rob Jewkes was a really good friend of mine who I'd worked with on all my jetty jobs. Rob is the probably the most impressive project manager / engineer I've ever met. An amazing guy - his capacity to work is just incredible - and everyone assumed Rob would become the CEO but there were a lot of negative things around and Jock, I think, didn't want Rob to be the CEO. Jock wanted someone new. They went to the market and they got a guy in whose background was mergers and acquisitions from British Aerospace. I'm sure he's very smart - but he didn't know anything about construction and he came in as CEO. It was just an abject disaster. He wouldn't take risk. He went cold on some projects and we were losing money. He fought our clients in the media. He'd go in the papers and say 'it's appalling this

client hasn't paid us our claims' and you just [don't do that] you know. It was just awful.

DAA Not the way it works is it?

SM No. Up to then I had thought I could work with anyone. In fact, Spud said to me 'you're the stupidest woman in Australia because you worked for Clough for nearly 25 years and you've only just realised that you're an employee' And he was absolutely right. We behaved like we were part of a family company. Harold's ability to let you do things. If you had an idea you'd go and see Harold and he'd say 'yep, give it a go'. And if it failed you learnt, made changes and had another go. If you failed then fail fast and pick it up and that's okay. Failing twice on the same thing that's bad. But [with] Harold you'd be running a project and it wouldn't be going well and you'd go to see Harold and he'd give you a big hug and say 'you young people, you're so clever you'll come up with something'. You would work 20 hours a day for the next six months to make it work because I used to think 'it's his money and he thinks I can fix it'. It was very empowering and it was [good]. We had a great time.

DAA Sounds like a big family?

SM It was great. But we worked. I worked insane hours and insanely hard and so, by the time things were going bad this new CEO came in - David Singleton - and it was a disaster so a lot of people left very quickly. I thought I could make it work. I lasted eight months which was sad because I was almost the last of the original Clough people to go. So, in less than a year about the top maybe 150 people left the company. Just 'how to destroy a company in a year'.

David was on a bonus scheme – it wasn't totally his fault he was on this. The board had put him on a very big bonus scheme and as I was reporting directly to the CEO at that stage, he basically explained to us how the bonus scheme worked for him and explained to us what we needed to do so he would get his bonus. And we kept waiting for the "what's in it for us" and we were supposed to be motivated by this

and thinking ‘why am I motivated to work really hard for you to get a bonus? I don’t understand why this is good’.

He just didn’t understand. I don’t think he understood Australian work-forces. He was very British. Anyway, it was a disaster so I decided ‘I can’t stand this any longer’ and I left. And it was probably, to be honest, leaving Clough was one of the hardest, probably one of the most if not the hardest, thing I’ve ever done. It was worse than losing Laura it probably worse than my marriage break-up it. I was absolutely wrecked. It was awful. I had always assumed I’d be there forever and it just wasn’t [like that]. It was just so awful working there for those last few months.

I left with no real plan. I thought maybe I’ll just be a mum for a while. I had no plan but before I’d even left Clough, Jim Gill who was CEO at the Water Corp contacted me.

DAA I’ve interviewed Jim.

SM Jim said ‘I hear you’re leaving Clough. Come and work for the Water Corp’. The climate was changing really fast by then and it was very clear that the Water Corp needed to do something else. We weren’t going to just pray for rain it wasn’t going to work.

DAA Now we’re talking about the environment now, the climate?

SM Yes,

DAA Not the economic climate?

SM No. No that was the physical climate. Jim knew that they were going to be spending a lot of capital. The Water Corp had a capital budget about a couple of hundred million dollars every year and he knew their capital delivery capacity needed to grow He forecast if they were building desal plants then it was going to go up to a billion dollars a year and Jim wanted private sector construction experience in at a senior level.

DAA Alright now I'm just going to get you to pause there a moment. You talked about working crazy hours. Have you paid a price for that?

SM Yes, probably. That's probably why I'm not still married. But I don't think I've paid a price for that with my children. Probably not at the time. Maybe Spud and I just grew apart. It was only when he retired - this is much later than that - and was sitting around at home and probably I was really busy by then. I was CEO at the Water Corp so I was probably not as sympathetic to him being bored and lost. I was just busy.

DAA You were very busy?

SM I was busy and probably I think he just didn't like it. But the girls are very independent [and] I've got a great relationship with my girls.

DAA Okay. I ask the question because these are important part of your life, aren't they?

SM Sure.

DAA I mean you obviously worked very hard?

SM Yes, but I think you probably sleep less.

DAA But you enjoy yourself?

SM Yes, I've always [done that] and apart from the last probably six months at Clough I had a brilliant time at Clough.

DAA I remember years ago, when I was a bit younger, I would sleep four hours a night and I used to regret that because there was so much I wanted to do, you know.

SM Mmm. Yes, well I would have slept longer but the kids were little. But the kids grew up. They were good, you know. They were good and I did have strong support. if I hadn't been able to get the right sort of child support care I could not have worked as I did.

DAA Yes, well that was an important part as well wasn't it?

SM The girls have always been happy. In fact, when I left Clough Jim offered me the job but I said 'I want three months at least not to work' and in those three months I sat down with the girls and said 'what do you want me to do?' and Lexi, my youngest said 'I want you to cook home-cooked dinners and tuck in our beds so tight we can hardly get into them'. And Catherine my middle daughter said 'I don't want you to ever get on a plane again' and Elizabeth the eldest she said 'I want you to get another job because you will get involved with our school. If you're not working [then] you'll get involved with the school and I love the fact that there's all those other people have got those mums that are everywhere at school and know everything and you don't'. So, she said 'I don't want that. You'll drive us mad. Get a job'.

DAA They wanted you to use that energy?

SM In fact, my rule with the kids was that every year I would have the first day of the school year as a day off work. I'd take the girls to school take all their [stuff] because the first day you've got your big bag with all your [gear in it]. Take all that. Meet the teachers, explain to the teacher that I'm probably not going to see you again for the year unless something's wrong. Give them all my contacts but say 'I'm that mother that is useless'.

And then I had to come home and I had to make home-made chocolate-chip cookies, put a roast dinner on, make all the beds - the kids' beds. This was their fantasy of what stay-at-home mums did. Their fantasy was stay-at-home mums made home-made biscuits, they had roast dinners and their beds were made. This was Lexi's dream that the bed was made and tucked in so tight that she could hardly get in to it. That was her dream. So, for one day a year I would pretend that we were all doing that.

So that was my plan for the three months. Didn't go quite like that. I started cooking more glamorous things and I always remember I made 'osso buco' and the girls said 'we're eating bones. This is awful why can't we have spaghetti bolognaise' because before we had spaghetti

bolognaise three nights a week. And I said 'well, I'm home now. I can do a bit more [cooking]'.

DAA You can experiment?

SM I said 'this is [what I have done]' but they said 'no, we don't want bones we want spaghetti bolognaise'. So that didn't last long,

DAA I just keep harping back to the impact on lifestyle. You haven't made any observation about the impact of being a woman in an engineering world?

SM No. It's interesting that when I joined Clough the senior engineers at Clough were, and still are, wonderful gentlemen. Don Young - I don't know if you know Don?

DAA I know Don well, yes.

SM Don Young, Peter Knight, Geoff Smith, Harold Clough - they are absolute gentlemen. They probably were a bit protective of me but they would never have been unkind. There was no derogatory language so from the top down it was a very much 'if you've got a good attitude, if you can pull your weight, if you can do things then we love you. Harold's the sort of guy he didn't care what the receptionist looked like. He didn't want a pretty dolly bird he wanted someone competent. That applied to engineers too. So that was quite good.

In the field? Oh, there were lots of times where when I've been on site people have assumed that I was the secretary or something. But that's always quite entertaining.

DAA You can have a bit of a chuckle, can't you?

SM I think you get a lot further with a laugh than by throwing a hissy fit. I've always been able to see the humour. It's never been too bad. When I was in Whyalla on that job one of the concrete finishers had a crush on me and used to bring flowers and chocolates to work. That was a bit weird and when I said 'I don't think this is going to go anywhere I'm not going out with you' he resigned and left and I was

quite upset about that. I thought 'that's not good, I've lost a good worker'.

But I was, like, 24 and that was a long time ago. I think then at Clough people knew who I was and I had a bit positional respect.

In the field, I learnt a lot from those supervisors in the field. We had amazing construction hands. People like Nigel Prettyman and Don Chequer. These guys were very good man-managers and just how they led and controlled their guys was amazing. I have a theory that they all had ADHD and that they were terrible at school because they couldn't sit still and they couldn't concentrate. They were very smart though. But they hadn't invented ADHD in those days so they were just 'naughty boys.'

DAA No, we didn't know there was such a thing.

SM They were just naughty boys and so they didn't do well at school but when they got into the field they were very, very clever and without formal training they very quickly got great skills.

DAA Tell me how did you go with managing men then?

SM Well I learnt from these guys. They always said 'you don't lord it over people nor are they your friend', and it was good so I think I learnt from watching. Whyalla was a big learning [experience]. I had a big crew. I had a crew of about 50 or 60 guys so it was quite a big crew. It was the first time I had a crew that big. In the pre-cast yard - I'd had a team of about 14 or 15 - and I knew them pretty well. The pre-cast yard crew were old blokes, nearly all old Yugoslav or Italian blokes and they were very protective and very nice to me. They all wanted me to give their daughters career advice and I wrote speeches. A lot of them weren't very literate - they were very articulate but not very literate - so I wrote speeches for twenty-firsts and weddings for them. That was [good]. I was a bit protected there too. They were lovely blokes.

When I went to Whyalla it was a lot rougher. Whyalla was a rough town. The pub there - when you go in the pub on a night after a Friday night - in the toilets there'd be people shooting up heroin. I'd never seen anything like that until then. That was an eye-opener. Whyalla was in South Australia and they were putting people, anyone who wanted a State Housing house, they were moving them to Whyalla because they'd closed the shipyard so they had lots of spare government housing there. It was very much a welfare town and not very affluent and our crew was a lot rougher in Whyalla.

DAA So, as a social culture it was a bit basic?

SM Yes. It was amazing but it used to be fun non-the-less. I had all "my" boys - the engineers I worked with - like I said there were three of us in the one- bedroom flats and two others. So, we'd go out and go to the pub on a Friday night and there'd be a disco on and if anyone asked me to dance - any of the Whyalla people asked me to dance - those boys they were like having your brothers with you, you know. They'd say 'are you happy, are you right'?

DAA You leave 'our Sue' alone?

SM Yes, exactly, but that's alright. But I remember we had one day when we were supposed to do a concrete pour and we were all ready for the pour and it started to drizzle. There'd been a bit of union activity and the boys in my crew all walked off into the mess hut and I absolutely lost it. I stormed into the mess hut and I burst into tears and told them we were behind time, we needed to do the pour now rain or no rain. They were very sheepish and they all came out and finished the concrete pour. But I don't remember ever crying other than that.

DAA You didn't use that ploy then?

SM No, I thought it only works when it's natural. So, I didn't use it. No. I'd never really [done that]. You know there's lots of things that happened, lots of times people tried to put you down, but generally you can have a laugh or make it work somehow.

DAA Well you've used the key word 'laugh' there because I think a lot of people take it very seriously, don't they?

SM Yes, well it was a different time. When I talk about it to my girls now - like in Whyalla there were no women's toilets on the site. When I wanted to go to the toilet, I would get one of the boys to [take a look] because there were big construction toilets so you'd walk in and there'd be a bank of urinals and then some cubicles. I'd get one of the guys and I'd say 'can you go in and check there's no one in the urinals' because I didn't feel [right as] I felt it was in the 'too much information' category. I'd do a bolt for one of the cubicles and then get someone to stand guard. But what I learnt was bladder control and I wouldn't drink much tea or coffee in the morning so that I didn't have to go to the toilet. I could just about go the whole day without going to the toilet but toward the latter part of the project, when the offices started to be set up more, they'd put women's toilets in but they were miles away so I just kept doing what I was doing. My girls go 'oh, that's appalling'.

There were things that happened but I didn't really think about it. There weren't many women around so, it wasn't so much people putting you down but they were a bit surprised sometimes because they would make some assumptions that the woman couldn't possibly be in charge – but they were wrong.

Then later I ended up running lots of things in Clough. After I'd been HR Manager, I ended up Director of the Technical Resources Group which was Engineering Design, Estimating, HR, IR, QA, Safety and so on.

DAA This was with Clough?

SM With Clough. I ran the TRG for quite a long while and we were doing this toward the latter part of my time with Clough. By then we were doing a lot of work in Pakistan and in India - big gas plants and a big gas plant in Indonesia - and we had a big engineering design office so I ran the engineering design offices as well. I had quite a broad

portfolio and people knew who I was so no one was going to give me any hassle and I didn't have any grief. That was all fine. Well alright, you know.

So, Clough was great but when it ended it was time to go and then I went and joined the Water Corp and I came in to do [work] on the capital program. Well, I came in first of all to set up some systems - some shared systems - and then I took over the capital program.

DAA Now this was with Jim Gill?

SM With Jim. Jim was the CEO. I was running what was called Planning and Infrastructure so it was capital delivery and long and short-term planning.

DAA Okay. I'm just going to stop you there.

4 SM Climate change had hit the south-west of WA very hard and from 2001 on, the drop-off in rainfall was about 15% or 20% of the long-term average but the drop-off in run-off into dams was even worse.

DAA Oh, look, I remember when I came here in 1971, they had all these big dams and they were all full but within 20 years or so they weren't full anymore.

SM Yes. Because the pattern of the rain has changed as well. In the old days what we used to get was a winter storm front through about every week. Maybe a front would come through and you'd get a very wet day, then a wettish day, then a bit of drizzle, one or two nice days and then another front would come through.

DAA Mmm. Yes. you'd have a nice weekend.

SM If you were lucky or a bad weekend every time that [the cycle didn't coincide].

DAA It went in a seven-day cycle didn't it?

SM It did. But what happened from about '91 onwards, no, about 2001 onwards - in the '90s it started to change - so that pattern has changed.

The jarrah catchment which is what all our dams are in is like a sponge and if you don't get rain to wet it you don't get run-off.

DAA You have got to saturate the soil?

SM Got to saturate it and the rule of thumb used to be you need 250 ml of rain to wet the catchment and then you get run-off.

DAA Right.

SM But what we found from about the end of the '90s and starting about 2000 was that, even if the rain was the same average rainfall you'd get heavy rain and then a long period maybe three weeks with no rain and then another few days of heavy rain and the catchments were never wetting up properly so the run-off was right down. The run-off now is less than a sixth of what it was 30 years ago and even though the rainfall is only perhaps 15% down it's like 85% less run-off.

DAA In other words, the nature of the rainfall has changed?

SM Yes. The patterns. If you look at the climate, the rain patterns, in fact the whole climate, sort of moved south so that the climate of Perth now is pretty much what Geraldton used to be. And what it means is that those big fronts that used to come through the south-west still do but they miss Australia. They come through in the Southern Ocean below Perth and below Augusta. So, it's like the whole climate's shifted further south and it's the Indian Ocean Dipole they reckon is the temperature movement which has meant that the warm waters in the Tropics and the north of Australia of the Indian Ocean have moved further down. El Nino and La Nina don't really affect southern WA. They do a bit but that's an east coast pattern because it comes across the Pacific but for the Indian Ocean it's about the Indian Ocean Dipole and where the temperature change happens and it's moved a lot further south which just pulls the whole thing down.

DAA Right.

SM I joined the Water Corporation in 2004 after 2001 and 2002 were incredibly dry and the Corporation had made the call that they needed

to move towards climate independent [water sources] like seawater desalination but they had no experience in it so they'd decided that they would [acquire some]. They picked two engineers and seconded them into two different design companies that specialised in desalination - both in the UK actually but one was a French firm. They'd used that time to better educate the organisation, done a lot more research about how desal works, what the opportunities are and what are the issues. So, when I joined the Corporation in 2004, we had a site in Kwinana that we could use for desal and we were just starting the process of getting environmental approvals and all the rest. I came in to run the desal and do the other planning.

DAA Was it the first desal project in Australia?

SM First large-scale reverse osmosis [plant]. We have a desal plant in Denham that Water Corp runs. It's been there for a long time but it's quite small and there are small desal units - like Rottnest has had a small RO unit for years - so there were small little ones around but not [many].

DAA There were in the Goldfields this sort of thing I think?

SM Not much in the goldfields because the ground-water in the Goldfields is hypersaline.

DAA I remember Paddington Gold Mine had one.

SM Yes, they have a few but they had real problems because it's so saline the ground-water there.

DAA It was saltier than sea water wasn't it?

SM Much saltier, yes, and they had a problem with where and how to get rid of the brine. It's a bit problem for them. There are few and Leonora had a small one. There were a few but they weren't big. It was the first large-scale one outside the Middle East the one we built. In the old days desal was always about thermal plants so other MFS or those flash plants where you have basically it's a big kettle.

DAA Create a vacuum and boil it off?

SM Yes, but it's very energy intensive.

DAA Yes.

SM Reverse osmosis is where you've got the tightly wound membranes and water goes through them like a filter. It requires high pressure but [it is] way more energy efficient than a thermal plant. What you have in a membrane [is that] you push seawater at about 70 bar - so it's a high pressure – and about half the water comes out as fresh water and about half comes as twice as salty sea water. When the sea water's gone through the membrane at high pressure half of it comes out as fresh water at atmospheric pressure but the other half, which is twice as salty, is still at 70 bar. The breakthrough in desal is to have an energy recovery unit [remembering that] your waste stream is still at very high pressure so you get either a [Pelton] wheel or a different [arrangement to recover energy] but we used a different system. So, you get that energy. You recover [some] of the energy you push in. You recover nearly half of it and then you [use that].

DAA You are driving a generator, are you?

SM No, you're using it re-pressurise the water.

DAA Okay, so, you're driving the pump system?

SM You're using it to re-pressurise your water and that means it uses about 3.5 kilowatt hours per kilolitre of water produced through an efficient RO system, which is pretty efficient.

DAA I was going to say as an electrical engineer that doesn't sound too bad.

SM No. What it means is the average Perth house uses about 750 litres a day which is extreme but people water gardens and things. If you desalinated all that water, and you don't but if you did and if it was all desal water you'd have used about 2.5 kilowatt hours to make that water - which is about an hour of a normal air conditioner or, in my family's case, it's three girls straightening their hair with a hair dryer

or a hair straightener. We make energy choices every day and it's not a very bad one.

DAA Don't we all?

SM But the first desal plant was a real excitement. It was great for me. I didn't know anything about desal - not a clue - when I first joined the Water Corp. One of the reasons I joined the Water Corp was to have less travel because Catherine said 'don't get on a plane again' and I'd only been with the Water Corp maybe three weeks when I went off with Peter Moore and Garry Meinck on a desal tour of the Middle East. We visited lots of desal plants which was very interesting. And everyone at work's going 'ooh you're so lucky getting a big overseas trip and I'm thinking 'mmm, not really, and it's in the Middle East'.

DAA Oh yes, right.

SM But when we built that first plant that was my baby from 'woah to go'. I loved our first plant, the one at Kwinana.

DAA Did you break ground with that then?

SM Absolutely. It was a great project, absolutely. It was the biggest - it was the first large scale desal plant outside the Middle East. And it was a bargain. We built that so cheaply. It was when the rail tunnel was under construction here. Remember the rail tunnel was being built that Alannah MacTiernan was promoting? Well she was building the whole railway down south and that was a problem in that the unions were all engrossed with that and government, in fact everyone, was obsessed with it. They had a lot of industrial problems so we 'went below the radar'. I told Jim he wasn't allowed to visit the site 'no, we were not doing any tours. No one was allowed to visit'. The politicians would ring up Jim and say 'we want to have a tour' and Jim would say 'I'm not allowed on site so you're not going on site'.

DAA No. He told me that.

SM No one went on site.

- DAA He told me.
- SM We kept it very below the radar. We partnered in a full alliance to deliver the project which the Water Corp had only done once before. a Multiplex and Degremont, a French design company who are very good at desal, were our partners.
- DAA Let's just talk about the alliance. How did that work then?
- SM I love a competitive alliance. We called for expressions of interest for companies to form a construction and design partnership and they put their team up and we picked two based on non-financial measures - on the quality of the team and their previous experience. When we got to two then we paid them both to do a full design and cost but we paid them quite well because that means we own both designs so we had the ability afterwards to merge things if we want and they do a competitively bid cost. They bid the construction cost but they also bid 25-year the operations and maintenance cost.
- The Water Corp, our revenue stream is CPI indexed so we're protected against cost rises over the time so we will take the unit cost risk but, the private sector partner, had to take the quantum risk'.
- So, they would bid how many kilowatt hours or what the energy consumption of the plant would be every year. They would bid that in kilowatt hours but the cost of the 'per kilowatt hour' was the Water Corp's risk. Similarly, they bid how many man-hours but the cost of the man-hours was ours. So that was how we structured the alliance and it was a 25-year [time frame].
- DAA They calculated the quantities and you added the value - basically the dollar value?
- SM Yes, and we reimbursed them that. If we could get a better or a worse deal on energy that was our problem but if the plant ran less efficiently than they had predicted then that was their risk.
- DAA Okay, so energy's obviously a factor? Where did the environmental aspect of energy come in to it then?

SM Well the big issue was always going to be – well, in the environmental people's mind - was more about saline discharge into Cockburn Sound because Cockburn Sound is not well flushed especially since the causeway's been built. But we did all this. We did [a lot of] modelling. Modelling, modelling, and the modelling showed that it wasn't an issue. Then we had to do massive amount of monitoring for years after the plant opened and it's not an issue. In times of low wind which is autumn - end of April and May - that's when the wind is at its least in Perth [then] there's very little mixing and Cockburn Sound goes anoxic often so the oxygen levels drop right down.

DAA Is that natural?

SM Well they were doing it before the plant was built and they said 'if it goes anoxic you've got to shut the plant down'. So, we had all these criteria but as it has turned out they've never actually [occurred]. It's never actually happened so we've never had to shut the plant down but that was the bigger issue.

There was [also] some concern and the original environmental approval said we had to buy [or] we had offset the power we bought so we had to plant trees or do something to be off-set. But we did a deal this - was my baby too - I did a deal with what was then still Western Power in those days - they hadn't split up yet. Western Power had to buy renewable energy certificates to satisfy government rules for their own retailing purposes and they were buying the total output from a wind farm at Emu Downs even though they only wanted the tradeable certificates (RECs) not the actual energy. [So], they had the energy from Emu Downs that they didn't need and they were looking to on-sell so we bought 'REC – less energy'. We bought the energy generated from a renewable source but not the tradeable instruments associated with them and we had a back-to-back deal so if the wind wasn't blowing we would buy power off Western Power but if the wind was blowing more [than we required then] we'd send it back and it was squared up on a monthly basis [of] 'unders and overs'

So, we did [that]. It was very cheap energy and a very good deal for the Water Corp and we did that first. Then there was a bit of a wording issue in that we were not allowed to say 'we are using renewable energy to power the plant' we had to say 'we are purchasing energy from a renewable generator to power the plant' because there's a difference. And we all became a little expert - a few of us became very expert - in power purchase agreements and the complexities of renewable energy trading certificates.

By the time we built the second desal plant the regulator had changed the rules and they said if we bought energy [then] we had to buy renewable energy and all [of the] tradeable instruments associated with that energy. Which is insane. No other project in Western Australia has ever had that requirement and the tradeable instruments are for the retailer. They're nothing to do with the user. And that's still on. The state government could save millions of dollars a year by getting rid of those ridiculous requirements on the Water Corp. But it is what it is and that's money [going] round and round the circle subsidising Synergy. Well subsidising [something]. Anyway, [it is a] long story.

DAA I put my finger on a moot point there didn't I?

SM Yes, well, it's an interesting thing because people always talk about energy guzzling desal plants but the per capita energy use is minute.

DAA Yes.

SM The Water Corp uses more way more energy to pump water round the state than to generate desal but nobody ever thinks about that.

DAA No.

SM The energy to pump water to Kalgoorlie is a lot.

DAA Oh, I know.

SM It's a stupid project when you think about it.

DAA Wouldn't get off the ground today would it?

- SM Today you'd probably do brackish water desal because the groundwater probably wouldn't have been as saline then as it is now so they'd probably [do that]. If CY O'Connor was alive today, I think he'd just desalinate in the Goldfields.
- DAA Well of course, you know, with the benefit of hindsight we can see that today we could do it differently but, in those days, they did what they could didn't they?
- SM Of course. And people are always wanting to put the pipeline back the other way but that's really stupid because it's pumped at high pressure so it's thick walled pipe in Perth and thin walled pipe in Kalgoorlie so if you wanted to pump it the other way you'd have to replace half of it - at least the last bit.
- DAA You've got to rebuild it?
- SM People always want to build pipelines from the north [but] it's just so stupid. I don't think anyone understands the volume of water that we're talking about and if you build a pipeline from the north the water costs about \$15 a kilolitre or [would have done] a couple of years ago.
- DAA Well, the ocean brings it down for you?
- SM Yes, exactly. So, if you're within [normal practical limits] the energy to pump [in order to provide for] the head loss on a big pipeline is about a metre per kilometre of pipe.
- DAA Which is quite a bit?
- SM Yes, and if you're going to pump water then the net outcome with all the energy recovery it's about, say, it's of the order of about, 180 metres of head that you are left with to desalinate water. So, if you're within 180 metres [of head loss] of the coast desal [is a practical option].
- DAA Your head loss is friction isn't it?
- SM Mmm

DAA So, you can only go so far and that's it?

SM Yep and people say 'you can use solar pumps.' Well you could but they don't pump all the time.

DAA No.

SM And if you take water from the Kimberly you can't put it straight into a Perth dam because there would be cane toads and it would have to be cleaned.

DAA It has got to be cleaned?

SM You'd have to clean it up [considerably] which is massive. And people say 'oh, it'll open up arid agriculture'. Well, in the Kimberly in the Ord Scheme the Water Corp sells water to the Ord Irrigation Co-op for 0.1 of a cent a kilolitre and about three years ago it doubled to 0.2 of a cent a kilolitre and everyone [cried] 'we're going to go broke, we're going to go broke'.

DAA There was a riot, yes?

SM If you can't make things work at 0.2 of a cent a kilolitre [then] how are you going to do it at nearly \$20 a kilolitre. The only crop you could grow would be hydroponic marijuana - maybe that would be cost efficient?

DAA Even then that would be questionable wouldn't it?

SM Probably the only one with enough of a return.

DAA Yes, I mean it just doesn't add up does it?

SM People are absolutely convinced that water flows from north to south using gravity.

DAA Yes, I know. Somebody said it flows downhill but it doesn't.

SM Well it does flow downhill but north to south is not downhill.

DAA And it goes uphill and down a little bit?

SM But the second desal plant that we've built near Bunbury that does flow downhill to Harvey so that desal water flows under gravity to

Harvey and then is pumped back up to Perth. But when we talk about up from Bunbury to Harvey is 'up [to Harvey]' but it's down [hill].

DAA I understand.

SM So, I joined the Water Corp, built lots of things, ran the capital program, learnt an awful lot about water because I was running the group that were doing planning, went everywhere, learnt about planning - long term planning, design solutions, learnt how government works. I'd been GM of planning and infrastructure.

I joined in 2004 and in early 2008 Jim Gill said he was retiring which surprised us all. I don't think anyone expected Jim to retire that early. Jim was really upset when Geoff Gallop retired. Remember Geoff Gallop retired for mental health reasons?

DAA I suspect that Jim had a lot of time Geoff Gallop?

SM They were very close. Geoff is the reason the desal plants got going. Geoff was Minister for Water and Premier. He was very visionary.

DAA Yes, I know. He was, wasn't he?

SM Geoff was a very good politician and I think that was almost the final straw for Jim. Maybe not. I don't know but Jim announced he was going to retire and Jim said to me 'I think you should have a go at being CEO' and I thought 'well, I've never considered that. That wasn't what I was going to be when I grew up. I was never going to be CEO of the Water Corp'. But I applied for the job and got the job [but] by a pre-agreement from when I joined the Water Corp I'd had a deal with Jim that I could do one of those senior leadership development diploma programmes overseas.

I'd been looking into options to do that and I had planned to do that in 2008 anyway. It worked out really well because I was appointed CEO but it wasn't announced. Jim was going to remain in place for the next few months and I went to London Business School for six weeks to do a senior executive program there which was really perfect timing for me because a lot of it was about social media and digital

transformation. When I came in as CEO, I started a blog straight away and I used social media a lot in the Water Corp which we'd never done before. I was much more au fait with that because I'd done that program and also it sharpened up all my finance skills. My finance background was okay but it also meant that I had that six weeks to think about how I wanted to do things at the Water Corp. It included some really good media training. It's a fantastic program. Just a luxury.

DAA Okay, I'm going to stop you there.

5 DAA My name is Doug Ayre the date is Thursday the 28th of November and I'm continuing with the interview of Sue Murphy. Right Sue, now we'd started with your tenure of CEO at the Water Corporation?

SM Sure. Well I joined the Water Corporation toward the end of 2004 to run initially in the Shared Services Group and then very quickly after that ended up running what was called Planning and Infrastructure so I wasn't CEO. I wasn't brought in as CEO I came in to basically to run the capital program.

The first major project I was leading was the first desal plant - it was called the Perth Seawater Desalination Plant - at Kwinana. I'd come straight from the private sector and a lot of the work I'd done at Clough had been competitively bid alliances so I understood the alliance methodology and that was the methodology, the contracting method, chosen for that project. I was the chairman of the alliance lead team for that project.

I was doing lots of other things in the Water Corp but the desal plant was the biggest gig we had on and at that stage climate change had hit south west Western Australia much harder than anywhere else on the planet almost. Since 2001 we'd seen rainfall drop right off and our run-off drop even more because the pattern of the rainfall is what affects the run-off into the dams. We used to say you needed about 250 mil of rain before you got run-off into the dams but that was based on the old climate patterns which was, basically, in Perth for

winter you'd get a front through about once a week. In a week you'd get a very wet day, a bit of a drizzly overcast day, maybe another day with a little bit of rain and then maybe four sunny cold days and then the pattern would repeat.

We'd seen rainfall drop by 15% in total but we'd also seen [that] you'd get a big storm though with only two or three very wet days and then you might get two or three weeks of dry weather. The catchments never were wetting up properly so the run-off was dramatically reduced to almost nothing.

DAA When you say 'wetting up' the ground wasn't saturating?

SM No. If you think of the jarrah forest as a sponge and you imagine a dam as a hollow cut into the sponge you will never get much water in hollow until the sponge is wet.

Jarrah forests, the jarrah trees, are the most efficient users of water that there are. They are a tree that's designed for terrible conditions and any water that falls on a jarrah catchment they suck it up very quickly and hold it. Every now and then you'll read a letter to the editor saying that the problem with Perth's water supply is the trees in the catchment and we should rip them all up and cover all our forested catchments with bitumen instead and they're kind of [correct]. It's true that if we did that you would get better run-off into the dams but I don't think it's a fabulous plan and I wouldn't want to be the government trying to remove all the forests through the Darling Scarp and the south west and replace them by bitumen. I think we might inadvertently cause some other issues.

It was becoming very clear that praying for rain as a corporate strategy was not going to work for the Water Corporation. The desal plant was something that the Water Corp had always had on the back burner as a plan for the future but it had always been in the 'once in a blue moon', million year, not million but very long-term scenario. In 2001 when the climate had been very dry that was the driest year on record and then the next couple of years weren't much better and the

Corporation had planned to start building. But they didn't know much about desal and they hadn't had a lot of experience with it. We had a small desal plant we operated in Denham and a couple in the goldfields [on a] very small scale but it wasn't a core competency of the Water Corp.

Jim Gill my predecessor had decided not to go ahead and build it straight away but to learn and had seconded a couple of Water Corp engineers into some desalination design and operation companies globally. Then, when I joined the Corporation at the end of 2004, we'd gone back to market and at that stage they'd already picked the two consortia that were going to bid. We picked the two teams based on capacity team and experience and then they bid on money. So, money didn't come into it till you were down to two.

DAA This was based on the assumption of an alliance?

SM Yes. It was an alliance design, construct and operate for 25 years [and] I led through that process. The winning consortia was Degremont, a French company, in partnership with Multiplex. In those days Multiplex Industrial Division which was headed up by a guy named Don Lewis and ironically Don Lewis's father had been the Public Works chief engineer on building the Ord Dam 50 odd years before that. Don was a great guy and he was a very good man for an alliance. A very good, a very trusting, open kind of guy. The French partners in Degremont had never done and they'd never really heard of an alliance. It was new. Not a very French concept, trust, sharing, so we had a lot of work and did a lot of work with that group. But it was a very successful alliance and the project was just before any of the other [similar projects]. In all the other states the millennium drought had started but they hadn't addressed anything. They were just praying for rain and doing a bit of demand management so we were ahead of the curve.

The construction coincided with the new rail line that was going through - the north south rail line for Perth – and including the rail

tunnel through the city which was done by Leighton-Kumagai. They had a lot of industrial problems. It was a very visible project and the BLF - then CFMEU - got very involved and they had a lot of issues. So, we made a call that we were going to 'go below the radar'. We awarded the contract [but] we did no tours of the site. I didn't let Jim [the CEO] come to site and no one else. Pollies would ring up every now and then and say they wanted a tour Jim would say 'no, I'm not allowed on site and you're not allowed on site'. Jim, actually, we snuck him down so he had a look around but the public stance was 'nothing happening here'.

We didn't do a lot of media about it once we'd started and the project went very well. Our site was next to Len Buckeridge's James Point proposed wharf development. He wanted to do that development which was a land-backed wharf right in front of our new desal plant and Len was very keen for us to work with him. He hated the government which was then a Labour Government. He hated the Labour Government and he hated Alanna MacTiernan and he was desperate to get his port up.

DAA Sounds like Len?

SM He used to say it was pure hate kept him going. I'd known Len when I'd worked for Harold Clough because Len and Harold had done some developments together. Len told me I was the stupidest girl he'd ever met [because] I'd swapped Harold Clough for 'little Jimmy Gill' he said. But we said no to Len's proposal but he used to hang [about]. I think he was a total insomniac [because] he'd come in the middle of the night in his big flash car and sit in our security hut. He'd bring coffees for the boys in the security hut. He always prided himself [that] he knew more about the project than anyone else. He'd ring me out of the blue and say 'I hear you had trouble with the Favco crane' or something like that just to show he knew more.

But it was a great project. I'd come out of construction but I loved the building bit. We had all our alliance meetings on site. The project

went very well. Our price was a bargain. We built that whole plant for \$273,000,000 and our losing bid - when the east coast started to panic and move in to desal - our losing bid which was a joint venture of John Holland's and Veolia [then] the Gold Coast when they wanted to build their desal plant they basically took our losing bid that had been bid under the same circumstances exactly as it was. They added a much more complicated inlet and outlet scheme but that price was \$1,100, 000,000 and maybe another \$200,000,000 for the inlet and outlet so there was a massive margin on. So, ours for \$273,000,000 was the bargain of the century and it was built on time and on budget.

Multiplex were great. Don Lewis was a great partner. Tragically Don left Multiplex a few years after that and was CEO of, is it, Sandfire the resources company and he and all the directors of the business were in Africa in a light aircraft that crashed and they were all killed.

DAA I interviewed his father.

SM Well I don't know his father but Don was a lovely man.

DAA Yes, I interviewed his father just before that happened. We talked about the Ord Dam. I did that for Engineering Heritage.

SM We had a 50th Anniversary of the Ord Dam - opening of the diversion dam I think - and there were lots of photos of Don's father that were in that exhibition that we put together. He looked uncannily like his father when you saw photos [of his father] at about the age Don was.

DAA That would have been heartbreaking.

SM It was just [terrible and] such a tragedy for that business, for all those families, and a real learning of 'don't put everyone on one plane' too. But you know it was very, very tragic. Don was an excellent alliance partner and not everyone is so that had been [good].

DAA I suppose personality comes into it a lot doesn't it? You've got to be fairly open.

SM Yes, and because I'd come straight out of construction, I think I better understood the construction thought process, and where the risks

were, and I probably thought more like a constructor than a client. But what I'd learnt when Clough had done alliances is that you can make a lot of money out what was [extra] cost so the rule was always that the financial controller, the accountant for the alliance, has to be a Water Corp person [and] I brought the financial controller [from Clough] with me - the amazing Rob Bickerton - and so Rob ran the accounts for the Water Corp, for the French company and Multiplex - all the international transactions. Did the whole thing.

But Rob was merciless about what was the 'cost to the contract'. For example, as a contractor when you work up your labour rates you cost in the cost of sick leave but Rob would make sure we only paid sick leave actually taken because lots of people don't take all their sick leave. He was merciless on what was an acceptable cost for an expat from France who was working on the project.

So, it was a very successful project and worked very well. The project was completed. I joined the Water Corp in the September and the following September the project was nearly done and that Royal Show that September we had a big Water Corp display on desalination, how it worked, what it was, we had a scale model of the plant, talked all about the whole thing and we had thousands of people through. People would say 'this looks really good, when are you going to start building this?' and we said 'well, we're expecting to get first water out of it in a month or two' and in November we had first water.

They had the official opening early the next year. At the end of that year I'd been doing lots of other things in the Water Corp but at the end of that year Garry Meinck who had been the Chief Operating Officer at the Water Corp, who was a lovely, lovely man, Garry hadn't been well on and off for a few months and he was diagnosed with late-stage leukaemia - a blood cancer - [and there was] nothing he could do and Garry died a few months after that. So, there was a bit of a reshuffle and I ended up in the Water Corp then taking on

Engineering Construction, all the planning - long and short-term planning - which was great fun. That was the end of 2005 so I did that in 2006 and 2007 and then we built the desal plant. We had a lot of capital works going.

When I took over that role we had 11 disputes about to go into litigation and we sorted them all out with various mediations and got all that [out of the way]. It was a really good time. I guess coming in from a construction side when I saw [the situation] I realised we could have made a lot more money as a constructor if we'd known how little parts of the Water Corp understood about construction. We had some great project managers but [with] the accounting function they had a cost payment curve and they'd assumed that you paid about 60% of the project toward the beginning and then it tapered off. Now, no contractor ever pays for anything until they get it delivered to site so [with] most contractors it's only as your labour racks up that your costs go up. I remember the accountant at the Water Corp saying 'you're late, your project's really late' and I said 'no we're not, if anything we're a bit ahead' He [insisted] 'no, no, no you're late, look at your cash flow' because [with] the alliance we paid actual cash out. We kept the alliance partners so [that] we were only paying money when they paid money, not when they invoiced money. And that's when I thought the Water Corp actually believed those 'inflated cash curves' we used to give them as contractors. It was quite interesting.

I bought quite a few people in from the old Clough. Clough had sort of imploded altogether by then and some estimators [came to work for us] because the Water Corporation had good strong project managers but it wasn't very good at estimating projects. It used very high level indicative ratios and numbers and we needed to do bottom up estimates because at that stage one of the issues on government is that all government projects seems to come in late and over-budget partly because the estimates weren't very good and they [had] 'ginned around' too much at the beginning.

We got so that we were pretty good and because I always thought if Treasury are [involved and] we were borrowing money from the state we need to behave with real rigour on that so [that if] the Department of Treasury knew that if we were going to spend \$1,000,000,000 then we would spend \$1,000,000,000 or maybe \$999,900,000 but we wouldn't spend \$1,500,000,000 and we wouldn't be late and not spend the money.

When you're doing a big capital projects of over \$1,000,000,000 a year though it's like you've drawn a line on a road and you're going to cross that line on the 30th of June and you're driving a fully loaded semi-trailer at 120 km/h down the road and you've got to cross that line at exactly the stroke of midnight on the 30th of June so [you had] to get your cash flows right. And we got very good at that.

It actually helped us in Treasury because Treasury would take money off the agencies if they weren't spending it efficiently and we always over-bid our capital program and made it work. Anyway, it was a good [time and] it was lots of fun. Planning was fun. I really enjoyed all that.

And then Jim Gill announced that he was retiring which surprised everyone. I personally think it was sort of triggered by Geoff Gallop suddenly retiring. Geoff Gallop had been one of the drivers of the desal project [and a] very strong supporter of it but by the time we [held] the official opening of the desal plant Geoff wasn't the Premier any more it was Carpenter, Allan Carpenter, but he very graciously got Geoff back from the east to come to it - because Geoff had moved interstate by then - got him to come and be part of the opening which was really good because it had been very much his project.

Geoff had been Minister for Water when he was Premier which was quite unusual. Usually Water has got a very junior Minister - it's not really a big issue - but Perth was really in quite a lot of trouble. The Corporation had a 'security through diversity' campaign which was about a multi-pronged approach to using less water, recycling more

water and creating new water sources. When Jim announced he was going to retire Jim said to me 'you should apply, you'd be good'. Jim had no say in who the new CEO was [but] I applied. I don't know that it was my life's dream but I got the job and it was fantastic.

DAA Let's just pause there for a moment. You don't know whether it was your life's dream? Did you have a plan?

SM I was very good at planning in general but I'm not very good at planning for myself personally.

DAA Oh right. You surprise me.

SM I've always assumed [that] big decisions in life have always made themselves. I reckon so.

DAA Yes, they tend to give you certain options don't they and then cut the rest off?

SM Mmm.

DAA But you didn't have a vision then that you [had in mind]?

SM No. I certainly didn't [join] the Water Corporation to be CEO. I joined the Water Corporation because Clough had imploded, I'd been unhappy there, Jim had said he needed someone to bring in private sector rigour on the capital program and that appealed. I'd enjoyed the work we were doing. I really liked the people I worked with and Jim was only just 60 so I didn't expect Jim to retire then. I thought Jim would go on for a bit.

DAA You must say though that [with] Jim's choice he was pretty shrewd, wasn't he?

SM Yes. And he went cold. I mean he didn't go to do [something else], He just went.

DAA Yes, I mean he left you to it but the fact of the matter is he put somebody with private enterprise experience in charge of the projects which is really what it needed didn't it?

SM Mmm. Yep it was good. Jim was great. I applied for the job and my planning was [that] 'there's no point in stressing about this job because I haven't got it and if they offer it to me then I'll worry about it'. I got offered the job.

When I joined the Water Corp, Clough had a program where they sent you to Harvard to do the Harvard Advanced Management Program and I was supposed to have done that but I deferred it because surprise, surprise, I had another baby. So, life was a bit chaotic and I didn't think I could go away for three months with small children and all the work I was doing. But, when I joined the Water Corp, I had explained to Jim that that [Program] had been on the cards and that I was thinking I'd do that sometime and Jim said 'well, find the project - a development program - that you think is the right one and come back to me and we'll see if the Water Corp can come at it'. I [had] talked to Jim earlier that year before I'd even applied to for the CEO role [and] Jim had agreed that I could do this.

It's only a six-week program at London Business School - London School of Economics - which is their advanced management program but it was [amazing]. You live in at London School of Economics and you learn a fantastic program.

So, I'd booked to do that and we had the interviews in the year and Jim was due to retire at the end of October and I went. I was appointed to the job in beginning of August with a start date in November. But then not long after I'd been appointed to the job I went straight to London and did the five weeks there. It was the perfect time to do a program like that because I knew I was coming in as CEO but no one else knew that - or not very many people knew that.

That program at London School of Economics had a big focus on social media and digitisation of businesses. This was 2008 so at that stage it wasn't quite as mainstream in business. Lots of people used Facebook but there wasn't much else. I came back and Jim had taken

[time off]. When I got back Jim just went on leave so I acted for Jim for about four weeks and then I was formally appointed and it was from the beginning of November I was formally CEO. But I came back and I started. I had a blog 'Sue's Place' - not a very original name - I had a blog that I used all the way through. It started off and I'd blog about what I was doing representing the Corporation because I was quite surprised when I became CEO how much of my time was going to things, representing the Water Corp. Some were meetings, some were things where they were giving the Water Corp an award or you were always [representing] the face of the business.

DAA You don't always realise that you're representing them do you but you are.

SM You always are. I think you're always judged on [that].

DAA You're always 'on deck' aren't you?

SM So, I started blogging about where I was going because I figured I was representing everyone else and I should tell them what they were being represented at and what we were doing. I'd often blog late at night. I was blogging maybe three times a week and writing what I was doing. I'd talk a bit about my kids and my family because I always thought it was important for younger women to not feel that they had to hide their children because often I'd heard lots of stories of people who said 'I'd like to leave I need to leave spot on five to get the kids from day-care but no one leaves till after five and even though I come in early I just feel really guilty going'. So, I started blogging that I was going to the school sports carnival, or doing that, because that gave other people permission to do it and it was actually quite good.

That London Business School, School of Economics, program was very good because I also had learnt a lot more about regulatory models for regulatory pricing. We had a very complex regulatory model with the ERA and very complicated, quite complicated, financial modelling that we were doing in the business and Jim was a

very good strategist but he wasn't really interested in those sorts of models. I'd come out of the private sector where your CFO is your absolute partner and we'd taken on a new CFO not long before I became CEO - Ross Hughes and Ross had come out of Bank West. He'd been with Bank West when it was government and but his role was moving to Sydney and he had a young family and didn't want to move his family to Sydney.

Ross Hughes [and I] we got a very good [relationship]. [He was] probably a better accountant than you would normally get in government because of that - because we were Perth based. I think Ross would have caught up with Jim once a week and I was seeing Ross three or four times a day and my other direct leaders because the construction world is a much more team-focussed thing. I changed the office layout [from what] Jim had. When Jim had come in he'd come in to make a lot of people redundant and make a lot of change. Jim's office was quite protected with the old public service style with the walls and the door and the secretary guarding you [inside].

DAA Literally compartmentalised?

SM Yes, so, we took all those walls out and made it really open and it made a lot of difference. I think there was a bit of a cultural shift. So that was all good.

But the climate kept getting drier and drier and drier so we built our first desal plant and we did a big project called 'Water Forever' which was a big 50-year planning study. Massive amount of engagement. I had all our general managers in and we had booths set up in shopping centres on the weekend on a Saturday, where families were out, to talk about what we were planning and questionnaires and it was a massive piece of engagement. We came up with our 50-year plan.

But the climate was drying so we came up with Water Forever which came out in early 2009 and not very long into that it was really clear that we were going to have to keep investing so we went straight into the Southern Seawater Desal Plant and then we doubled the size of

that. They were supposed to be five years apart - decisions [every] five years but we did it in one year [and then] year three so it was very rapid expansion.

All through that process we'd always envied Southern California - Orange County in Southern California - because they were taking highly treated waste-water and injecting it into the ground. Originally just as a buffer to keep salt water intrusion out but then they started using it for drinking water purposes. [It was a] small-scale plant but they grew it and grew it and we knew that engineering-wise that was quite feasible and would work well in Perth.

DAA So that uses the ground as a filter?

SM No, not really.

DAA No?

SM The water is like [clean].

DAA Its potable anyway is it?

SM The water that goes into the ground is like distilled water. It's perfect.

DAA Right.

SM It's been through the waste-water treatment process so it's the quality that would go out to sea. Then it goes through a reverse osmosis process. It goes through coarse filters and reverse osmosis then it's zapped with UV light to kill the DNA of any living thing that's in there and then it's got chlorine added then it goes into the ground. Then it's pulled out. The ground-water is flowing underground and we used the Perth Yarragadee [Aquifer] which is over a kilometre deep - very deep groundwater - and no one else is taking water from that for water purposes so we use that groundwater.

But we knew we needed to bring the community on board [but] that was a 10-year process. We started doing a lot of research and we built a trial plant at Beenypup - at our waste-water treatment plant at Beenypup.

DAA I live in Craigie by the way.

SM Okay, well you know where the waste-water treatment plant is.

DAA Yes, I do.

SM We built a small plant and the output of the plant was not water it was a regulatory framework. We ran massive testing and I think we did 80,000 water quality tests. We had a little pilot plant that would treat that water to potable quantities and then we were injecting it [into the ground] and we had all these test bores in a circle all around seeing where the water moved, how fast it moved, and we would put a rhodamine dye - which is a non-toxic dye - but you can measure the rate of movement of that water through the ground. From that we had a bipartisan or a three-way project with the Department of the Environment, Department of Water and the Health Department. The Health Department were probably our main stakeholder for that [in order] to get the regulatory framework and the testing regime and the necessary controls in place.

We ran that trial for three years with I can't remember how many thousands, 10,000 school children, went through with their parents and we had community open days so it was a massive community engagement.

DAA I remember [that].

SM It went on and on and on. By the time we actually got to the position where we got all the regulators to sign off and then took to government the first full-scale plant half of Perth thought they were already drinking the water and just [about] they were. It was just a non-event we'd [received] huge support. Over 85% supported or strongly supported putting recycled waste-water, highly treated waste-water back into the aquifer and you don't get that support for much else.

And along [during] that period Toowoomba had had their big [drought] nearly running out of water and they'd had a referendum on

whether people should drink recycled waste water they were going to treat it to a high level and put in their dam and it got resoundingly defeated. They were calling it 'Poowoomba' and they were always talking about 'toilet to tap'. They got really creamed. So, we made sure all our media talked about 'toilet to tap'. We thought one of the worst things they can say about [it but] let's lead with it and then put the facts out there. And [there was] very strong bi-partisan support from both sides of government in fact both the Liberal and Labour government believe they thought of ground-water replenishment and it was their idea and they supported it and I'm very happy to say is that they're both right, you know. They're both full of men and women of great vision and I'm very impressed with both of them.

DAA Well getting bipartisan support is crucial [isn't it]?

SM' It is because there'd been a number of jurisdictions that had tried to do these projects and Liberals say 'yes', Labour [say 'no'. If Liberals say 'desal' [then] Labour say 'recycling'. If Liberals say 'demand management' Labour say something else. It's not that Liberals or Labour have a philosophy for any sort of water it's just the need to oppose and it just destroys good ideas.

DAA It's the concept of opposition isn't it?

SM In fact, the one political truth is that you should never allow any option to go off the table for a political reason. Options should only go off the table if they're technically not feasible, hideously expensive or environmentally bad.

There is often political opposition to recycling. There is often political opposition to water being moved [with] water from the country going to the city [or] water from the city going to the country. People get very upset about those sorts of things. You'd struggle probably to get a Kalgoorlie pipeline built in these days because people in Perth would argue 'why should our water go to Kalgoorlie, we haven't got enough water in Perth' blah, blah, blah.

In Victoria there's the north/south pipeline which takes water from farming areas down to Melbourne that basically got turned off because the farmers objected 'why should our water go to [Melbourne]? And, in fact, after we built the first desal plant in our 'Water Forever' planning the next major source was to be the south west Yarragadee [Aquifer]. We were going to put a big series of bore fields in to drill the very deep water from the south and bring that up to Perth and we were developing the southern Sea Water Desal as the source after that as a later source.

But there was a huge political back-lash about country water going to Perth so the state government decided 'it's too politically difficult so we'll go straight to another desal'. The first desal plant had been such a success I said 'just go straight to a second one of those and don't even look at this' which was the opposite of what was happening on the east coast where desal was a bit on the nose. And then on the east coast a lot of the big plants that they built the plants were very expensive. All those desal plants on the east coast their cost per kilolitre of water was in some cases three times ours. Not just a bit more but massively more. And a lot of those plants didn't even work. They didn't [get used]. I mean they worked and they operated [alright but] they were never turned on because Queensland had a lot of rain. Queensland had big recycling schemes that they'd built. Two and a half billion dollars' worth of them and then they had floods so they never got turned on and that was pretty well all just wasted money now.

So, our story was strong and our climate continued to dry. Last year was almost an average winter because the average has come down every year of course. So, if your rainfall's a bit lower year on year on year eventually it has to get to average. But our story is still strong we need more water sources.

DAA Okay, we'll just pause there.

I've talked about water for the last 10 years so I can talk about water 'under water'. Being CEO was great fun and I had all the joy of getting through government the big capital costs of the desal plants. [With] the upgrading of Southern Sea Water Desal plant we built 50 gegalitres per annum [capacity] first and then we doubled the plant. The doubling the plant had always been foreshadowed in our Statement of Strategic Development plans and in discussions with government but when the flag came to fall the, then, Treasurer was very upset and said it wasn't in our forward estimates - which it wasn't but it had been flagged for years. We had some very torrid [discussion in what] used to be called EERC now it's just called EEC [what was] the Economic Expenditure Review Committee and now is Economic Expenditure Committee. I was [doing] presentations on why we needed the plant, explaining the whole thing and going back saying that [has] actually been flagged for many years. I spent a lot of time across government getting people ready.

I've been quite surprised at how there is no 'whole of government [approach]', how the resentment and win/lose approach [manifests] between government agencies [but] we did a lot of work in trying to aggregate people together, trying to bring them in and working across government.

[We] got a lot of our people to volunteer and be involved with projects for other people and it was good fun. The Corporation spent a lot of money in that time, our capital program was strong and I guess the thing I'm most proud of is probably getting the Southern Sea Water [desal plant and] getting the recycling plant over the line and that actually closes the water loop. If you look at the water that the Water Corp produces [then] about 40% of it goes on people's gardens and the other 60% largely goes down the plughole, eventually. So, 60% of that water if you recycle that - you can't get all of it back - but if you could [you would] get half of it back and that's 30% of Perth's water supply that you can get without creating new water which is a fantastic. At the moment with the expansion to

that plant it provides 28 gigalitres a year which is about 15% of Perth's water supply and in future they could probably grow it [in scale] for some of the other big waste-water treatment plants.

It doesn't work at a small scale because you want to take the waste-water [which has] got to be treated virtually to potable level before it goes in the ground. People say 'why don't you just put it straight into the water supply' well, you can but you've got to store it somewhere because the water supply isn't consistent. You have a diurnal peak and trough of – well, two diurnal peaks - of water use. Water [demand] peaks in the morning when people get up and have their shower, drops down in the day and peaks again in the evening when people all come home from work, and then water use at night is very low although water use at night in summer is surprisingly high in Perth because lots of people have automatic reticulation that comes in in the night.

If you're in the Water Corp, in the op centre, you see it. Everyone sets their sprinklers to come on 'on the hour'. Nobody sets their sprinklers to come on at 0234 but they all set to come on at 0200 or 0300 so you see spikes in water usage across the Perth region. But that means that if you're making water you've got to store it and a tank is not going to store [such amounts] - it's massive amounts of water. You can't just put that water straight into the water supply it's got to go in to some form of large reservoir or storage facility. Most realistically, and also in summer, Perth uses over a gigalitre a day but in winter it uses about 0.5 of a gigalitre a day. But if you're making water it's a flat all year-round curve so you need to put it somewhere [because] you can't just stick it into a pipe to a house. The obvious place to put it is a dam but pumping water from where the waste-water treatments are - and the waste-water treatment plants are all near the coast because you want your waste-water to gravity feed because if there's no power the waste-water flows away from your house. Believe me you want that a lot. You don't want to have to have pumping from your house.

To pump it up to the hills to a dam uses more energy than to put it into the ground and pull it out somewhere else so we actually use the underground as a storage reservoir as well as another form of filtration and it's also a cheap way to move the water around, We've [done] a lot of [work understanding] the change in climate and the abstraction of market gardeners along the Gnangara Mound and all of those pine trees on the Gnangara Mound - which should never have been planted - that are sucking water up like mad. Water Corp abstraction has seen changing ground-water patterns all through Gnangara so by injecting huge amounts of this treated waste-water and by being very strategic, and working with the Department of Water and Environment about where they want it injected, you can actually achieve quite a bit of local bounce-back to protect some environmentally sensitive areas and then abstracting in other places, you can actually balance out that water.

There are still a few parts where even in dry areas they can flood and it's a problem for residential development so we can take more water from those areas. The whole thing is a very complicated model.

DAA I hadn't thought about peaks and troughs but it certainly happens in electricity supply which is my discipline.

SM Yes. But the joy of water is you can store it a lot much easier but [it is] expensive to store.

DAA Well electricity is very expensive to store and not very effective.

SM No. That's the big difference between water and electricity.

DAA Yes, you can have a bit of a buffer in water, can't you?

SM Well there are big reservoirs around Perth, Melville, you know. Those [like that]. There are some huge ones now up at Ellenbrook. We have got big reservoirs scattered around Perth but they are not big enough for these [large storages because] they are just for the diurnal peak situation. So, lots of fun.

Along the way I got very involved [in various bodies]. There is a group called the Water Services Association of Australia which is like an association of water utilities which was a joy. I chaired WASA for four years and was very involved with the WASA group. It's a group of CEOs basically and it's the only group I've ever been involved with where there is no competition between us because if you look at the water utilities in Australia nobody overlaps. Water by inherent [nature] is a natural monopoly really so although you're all different you've all got your [own territory]. Sydney Water aren't trying to take over the Water Corporation or vice versa. So, it was a truly collegiate way to approach things. They were all owned - they all had a shareholder - either a local government in the smaller ones or state government, a Minister. We all had private sector boards [and] we all had local government or government ownership of some sort.

[It was a] tremendously useful network for problem solving. Therapy you know, when you've got [problems] - when things are going wrong you can bounce ideas - it was just fantastic and through them I got involved with some of the international water groups because no one in WA even thinks about water really not as much as they should but when you get outside of [Australia you find that] WA is recognised globally for what we've done in dealing with climate change. There are very few jurisdictions globally that have had the drop-off in water natural water supply we've had and yet we've had seam-less water. Perth is green but people don't even fully appreciate it. People think they save water but they don't. They've got no idea.

DAA No?

SM Perth still uses - the correct term is 'shitloads' of water - a huge amount of water.

DAA You turn on the tap and it comes out?

SM People don't think about it and it's still quite cheap. It's really interesting [when] we go overseas and everyone wants to hear the water story. I could've spent years [because] I could have just

travelled the world telling the water story. It was very popular. People would have paid for that. But then come home and your ministers are and your Board is and you think 'you guys are mad. You should come with me' but so it was very good.

Along the way because we'd been building, our capital program had been huge so a lot of effort in the Corporation had gone on building new things. The Water Corporation had always been an operating business that built some stuff [but] we had become a building business that operated some stuff. When we came to the end of the big capital bits of works [then] we had to move back to that, which was a bit painful for the organisation. We were a bit out of balance and we shed about 15% of our work force as we moved back. But rather than just shed the building people and keep the operating [people] we mixed it around and used that as a refresh. It's not easy to do that - it's not always nice to do that - but it was not too bad.

We had a mantra that 'for the top four levels in the business we wanted to have about a third of people continuing on in their job, about a third of people new to their job but from the Water Corporation, and about a third of people new to the Water Corporation' so we had quite a lot of change come through.

Of the people that left half were people who had had a caravan hooked up in their driveway for the last seven years waiting, waiting, waiting for someone to pay them to go away and they were [happy to go]. You'd say to them 'there's a team of five but we need this team to only be three so would anyone like to take a voluntary redundancy'? You didn't see them for dust.

DAA Their haste was indecent was it?

SM They were as 'happy as Larry' and they wrote letters, they'd send you postcards from their travels. They were 'happy as' but then the other half were the people that left and were very upset about it. There were people who basically said during the boom - because you know there was a huge boom in that time of construction and boom [economy]

they were saying ‘during the boom we didn’t leave for more money so you owe me’ and I’m thinking ‘well, I don’t. That’s actually true [but] you’re all grown-ups’. We paid generous redundancies so it wasn’t [too bad] but we had six months that were pretty difficult.

I had not an easy relationship with the Minister. I’ve had lots of Ministers. The worst year was [when] we changed Ministers three [times]. We had three Minister in 11 months which was [unprecedented]. It’s just so much work. Nobody understands that when you change Ministers - even in the same political party - every document you shredded, every piece of correspondence, everything that you’ve put in your Minister’s office is gone, just destroyed, and you start all over again with a new Minister. And from day one his colleagues or her colleagues expect them to know everything and so I had Bill Marmion and then the Liberals lost the election. No, no, no, that’s right I had Bill Marmion and then after [him] there was an election and after the election it became a National Party thing so Terry Redman became our Minister. And then Brendon Grills stepped down and Terry became leader of the party and Mia Davies became our Minister.

So, in one year we had the three of them. Bill was an easy Minister because Bill was an engineer from Main Roads, his younger brother had been in my year at uni. Bill understood our business pretty well. He was an easy-going guy but anyone who grew up in Main Roads has come from a similar mindset. He understood the capital program. He was quite a good Minister.

Terry Redman is the best Minister I ever had. Terry is smart [and] respectful. Terry is a joy to work with. He, of all the Ministers I’ve ever had, he best understands the idea of leaving [things alone]. You know, ‘don’t meddle, don’t micromanage; let it go but when things are [going astray step in] but make it really clear what he thought was important and then you can deliver on those things. Terry was fabulous.

Mia Davies, it wasn't an easy relationship with Mia. I started off thinking young, female this is going to be great. At that stage my chairman was a woman too I thought 'this is such a good story we've got a female CEO Minister and Chairman of the Board so this is going to be great'.

DAA I've got it made?

SM But Mia was young and Mia's a perfectionist. She is very smart. She's a great politician. She's Member for the Wheatbelt, she looks fabulous in RM Williams, she can talk for farmers. She's very good, very smart, but very brittle and very controlling. If she can't control it all she worries. If she'd just relax. When she's relaxed and 'off the cuff' she's fabulous but if she doesn't know every detail she gets really stressed and it just about killed us. I think I had five or six people working in the office feeding information. Files and files of stuff. No one could possibly read them and before parliament every day her office would be in this panic about what questions they'd get at question time. They'd think of questions. They'd think of all these questions - out of I don't know what - questions that you'd never be asked. We'd have to prepare massive answers and had people working like maniacs every day producing these great piles of data. I don't [whether] she got asked a single question about water for over a year and we'd had people putting [all this together]. It was just madness. It was very, very hard.

DAA So, there was really a high level of anxiety wasn't there?

SM Yes, and no trust.

DAA What a shame.

SM She seemed to think we were trying to set her up. I don't know why. I kept saying to [her like] I've always said to my Ministers 'the better you look the better my life is' because if your Minister's a hero or a heroine they're going to get funding easier, everyone leaves them alone, the media leave them alone, it's fantastic. There is nothing in it

for anyone in government to make their Minister look bad. So, I don't know. I think Mia just needed to [relax]. It was her first time she'd been a Minister so maybe we got her at her most paranoid and she [has] probably relaxed into it now. It was really stupid because I really respect her skills but it was hard, it was very hard going.

And then there was a change of government and we got Dave Kelly and Dave is a lovely bloke but he's [had] 23 years running the Miscellaneous Workers' Union. Dave was very left wing probably more left wing and I see he's convinced the Water Corporation not to have alliances.

The Water Corp had alliances with the private sector for delivering all of Perth's operations - two big alliances - one that delivered all the pipes and pumps all bits and bobs and one that delivered the complicated water treatment plants and operated all of those. The pipes and pumps ones were nearly all private sector people. The other one was nearly all Water Corp people but a bit of a mixture through [them] and each of those they drew a margin to the private sector but the margin was predicated on them hitting targets and if they could save money [then] they could. If the money was going to be saved forever, say they did something that meant that that plant would operate at \$400,000 a year cheaper for ever, then they got to keep 75% of that \$400,000 in Year 1 and in Year 2 the budget was reduced by \$400,000. If it was a one-off, they got to keep 25% of it but their budget wasn't reduced and that meant that you have a whole company putting all their resources to saving you money. It was fantastic. And the margins were quite low.

I think it was a [mistake but] they'd moved it back in-house since I've gone. [There has] been a bit of media about it recently. I think it's a mistake because I think I don't think the Water Corp have got the skills to run the industrial negotiations that'll be necessary whereas the private sector did and they could put in much more flexible

working arrangements because these are guys that work to 24/7 shift arrangement to deal with leaks and bursts. But anyway.

Look, I probably am left - slightly left-of-centre in my politics but not like Dave and I don't believe that the answer to everything is to bring in the unions. So different Ministers - different focus. Different chairmen too. My first chairman was the one who'd appointed me and Patrick was a very smart man - Patrick O'Connor - very smart. Probably one of the smartest people I've ever met.

DAA Who was this?

SM Patrick O'Connor. But he had done investment banking. He used to work for Robert de Crespigny doing some mining deals. He's a 'dealer'. Patrick's the guy who can get the 400 documents, flip through them and find the one mistake that makes the job worth more or less. Very clever. But don't know if he's maybe on the spectrum - a little very self-contained. When I first took over as CEO the first few months Patrick would critique everything I did and give me all these things that I had done wrong and after a while it really got to me. I used to think 'right' so I lost it in the end and said 'you, must be really stupid. Why did you appoint me CEO? I've never done anything in the last three months good'. He was really shocked and he said 'oh, I didn't think you were so fragile [but] you needed [support]. No, no, no, you [have done] lots of things good, I thought I was being helpful pointing out the one percent you were doing wrong so you could fix it'. And I said to him 'well, that's helpful but it's kind of got to [be offensive]' It got to the stage if I was doing a presentation I'd see him in the back of the room and start to think 'oh God, Patrick's here']. It rattled me.

But after that he was okay so Patrick was fine and then when Patrick stepped down [from his chairman] Eva Skira came in and she's fabulous. Eva's the best chairman I ever had. She's a very good chairman, very warm, loves the Water Corp. She'd been on the Water Corp Board way back when we first corporatized and had come back

and [had] a long career in banking, very strong intellect, and very strong [person].

DAA This was Eva?

SM Eva Skira, yes. Very good. She was chairman for quite a few years and when Eva's term expired - she didn't get on very well with the Minister either with Mia Davies [and] Mia didn't like Eva much either - I think it was all a bit difficult there and Mia had a difficult Chief of Staff at one stage too. That was not a happy time and there were a few dramas. But then Mike Hollett took over from Eva and I'm not sure Mike and I really saw [eye to eye]. We were just different, I'm sure he's alright but not really my cup of tea. Anyway, I've had good and not bad [but] I've had a variety of people, a variety of Ministers and it does affect how you run things.

Mike was a much more detail [person and] wanted to have his fingers in everything kind of chairman. The other chairmen had been more like chairmen [but] Mike I think was a bit of a frustrated CEO which had its own issues. But [it was] all very interesting and the Water Corp itself was fabulous. We dealt with this amazing climate issue, we built amazing projects on time and on budget during a time when nothing was on time and on budget in Perth. All [projects like] the Children's Hospital and Fiona Stanley [Hospital], everybody was having dramas about cost blow-outs none of [them on time but] our projects were good. Really good. Really good. I feel that I did bring to the Corporation strong project delivery capability and that was good.

We had a big push. Catherine Ferrari was my General Manager of Customer and Community and later ran all the billing and all the customer interface and Catherine was customer, customer, customer, customer and, at first, I didn't think [much of it]. When I first took over as CEO, I probably was a bit half-hearted about the customer stuff because I thought 'we're a monopoly, do you have to worry about this' but she convinced me otherwise. So, we did a lot of work

on customer, and customers in hardship, and how people can pay their bills, and how you can work with people. We did a lot of digital work on our data bases and our customer bases. You can buy data from credit card companies that tells you, not by person, but you can say which are your customer groups that are likely to go in to hardship and so if they miss one - if they've missed one bill - you can work with them and set someone on the phone to ring them and say 'I notice you haven't paid your bill, are you having difficulties, can we put you on a payment plan ? And work proactively before it gets bad.

We've always had a good relationship with the WACOSS - and all those groups - about trying to keep our customers and work proactively with them so you don't get people in a bad way.

We had some customers that were in a bad way who would stick right out. We had one man who had some clearly some mental illness and he would come in and pay his bill with a cheque every month but he had no cheque account and there was no money but he was writing these cheques. We did a big clean-up of a lot of those, wrote off some debt - people we were never going to get the money [from]. We did a lot of work on that.

Did a lot of work on customer demand management - using less water - garden stuff partly with the Garden Gurus and garden shows and did all that work so the per-capita water-use came down. We had a team, a water efficiency team, running all that time through. We never stopped advertising. So even if we had a year where we got a little bit of rain, we'd keep it going. You've got to keep the message [going out there] and you've got to change it.

DAA What you're really talking about there is demand-side management aren't you?

SM Yes. Huge demand-side management. Perth's per-capita water [consumption] from 2008 to 2018 - in that decade - Perth's population grew by a third but in 2018 we used 10% less water across Perth than we did in 2008. The population had gone down by a third and the total

water use had gone down so we had saved [i.e. used] it was nearly 35% or 40 % less water per capita. Some of that was due to smaller block sizes because in that growth period Perth's block sizes had got smaller.

DAA It was 'consumption per customer' was it?

SM Per customer, per capita, per person.

DAA Per capita. Okay.

SM Some of it was because we'd done a lot of work on water efficient appliances so you can't buy a toilet in WA that isn't dual-flush. There must be some single-flush toilets still left in WA but there wouldn't be many because in the last 15, over a 20-year period, most people have replaced fixtures [with] water-wise showers and taps. [It is now] very hard to buy a non-water-wise product and if you've got a toilet, and every time you flush it the old one used to use 11 litres a flush, this one uses five then your life hasn't changed in the slightest but every time you flush the toilet you use less water. So, there are those built in savings and then there are the smaller block size those are built [accordingly so] they're sort of physical savings and then you've got the behaviour-change savings.

DAA You talk about smaller block size [but] the structure of society is changing though isn't it?

SM Yes, but the smaller block size makes a difference. Me living in this big block is very inefficient, and one person in a house is inefficient, because you run the washing machine and you run the dishwasher. If you put two people in a house, they don't use much more water than one person in a house. The only extra with two people is the odd toilet flush and a shower.

DAA Really?

SM Yes. Generally [with] two people you don't really run the dishwasher more, you don't really run the washing machine more, you just run them fuller so you get an efficiency in that way. And then when you

start to get lots and lots [of people], when you get lots [of kids], if you've got a house with four or five kids you're using a lot more water but, remember, 40% of Perth's domestic water use goes on gardens so whether your garden is played in by 20 people or one uses the same amount of water.

DAA Mmm. Ye, well, you'll probably smile at this but I remember reading somewhere a fellow said his daughter went in to the bathroom and came out seven years later.

SM These days it's not just the daughters it's the sons [also]. I think the sons are just as good.

DAA Yes, so, if you do have a houseful of younger people you do tend to use more resources?

SM Well, in this place I've got an instant gas hot water system for my bathroom and the kitchen. That's shared there and the upstairs bedroom and bathroom and all the other stuff it's a storage heater so my logic was when it's empty [then] the water goes cold. So, if the three girls [and] if we had lots of people here and they were having long showers the last one wouldn't get hot water so they would self-regulate.

DAA Yes, I know [that] up at my bush block north of Toodyay I had a small interim water tank which held about 100 litres up on the hillside. I had a large tank up on the top [with the] small tank as an interim thing which I would fill once a day and then that supplied the weekend shed and at the end of the day if that ran out well, hey, we'd used our quota. We always called it the Dalek.

SM Oh yes, does it look like it?

DAA But the reality of it is it made us think about our water usage.

SM Well you find a lot of country towns in WA use much less water per capita than Perth and often that's because they're people who've come from farms where they didn't have scheme water at all and even when

they move into a town with scheme water they're generally [frugal].
Their old habits die hard.

DAA Yes, they've got into the routine.

SM Albany's a low water a low per-capita water using place, it also gets quite good rainfall.

DAA I was going to say it falls on their head [doesn't it]?

SM Yes, and in Albany people always said to the Water Corp 'you should mandate rainwater tanks.' But rainwater tanks only work when they're based on the number of days of the year with rain and in Albany you get rain quite a few months of the year. In Perth realistically there are only about four months of the year where you get rain so your rainwater tank is full but you don't want to use that water on your garden because it's raining. So, it's only full for four months of the year unless you can use it. If it's plumbed in for toilet flushing it's a bit better but the fact is it'll be full for four months of the year and then it'll empty very quickly and you've got nothing so, if you work out the cost of water [it isn't justified].

What people do is they work out the area of their roof, work out the average rainfall, and say that's how much water you get in a rainwater tank but it isn't. What you get is a tank that's full and then any rain you get when the tank's full you lose because it can't use it and, generally, when the tank is full [then] you're not using a lot of water. So, like I said plumbing it in for toilet flushing which is all year round is the most efficient way to use it but even then, when you look at the cost per kilolitre of a tank in Perth that water is more expensive than seawater desalination.

DAA Sure.

SM So, our view is as a Water Corp is by all means put in a rainwater tank. It's a great way to see how much water you use. It's a great visual signal but why should you make your customers invest their money in a scheme that costs more than a scheme we can build at a

large scale. It doesn't make any sense. So, seawater desal becomes the cost of that water and becomes the benchmark for Water Corp decisions. If it cheaper than seawater desal and or uses less energy per kilolitre you should do it. If it's more expensive and uses more energy per kilolitre then it's dumb.

DAA Of course, this is the curly one isn't it - what is it that persuades people to spend a dollar per litre of water and buy it from the supermarket in a bottle?

SM Oh well there's two [reasons]. The main reason is convenience and I understand it [because] when you've got kids and you're out somewhere and they want a drink and you don't have water with you, you don't have anything with you, and you could buy them a fizzy drink or a bottle of water [then] you buy the bottle of water.

DAA That right.

SM Exactly.

DAA It's understandable.

SM There are people who people who didn't - there are lots of people who don't - trust tap water to drink. It's really interesting because most of us who've grown up in WA trust tap water. In fact, we get into trouble in other countries when we do drink it. So, anyone who's come from another country - people who have grown up in Asia - who come to Perth they don't drink the water because they don't trust tap water. And even if government says it's safe to drink, they don't trust government.

DAA No, no.

SM So, they think 'well, you might say that but no'. So, people buy water and there's a whole lot of reasons but it is crazy expensive. But I've bought bottled water when I've been out you know if you're out doing something.

DAA Oh of course you do.

SM It's a better option than a Coke.

DAA Oh yes, of course it is. But it always strikes me that something like a tonne of water gets delivered to your door for about 15 cents or something?

SM No. No, a tonne of water [which is] 1000 litres costs about \$1.50 in Perth.

DAA Well, okay, \$1.50?

SM It is 0.15 cent a litre.

DAA And you're paying 50, 60, 70 or 80 cents for a 600-millilitre bottle?

SM I'd always pay a bit more and get it fizzy because at least [I would] get something for my money.

DAA You like fizzy, do you?

SM Well I [do because] it's something I don't get out of the tap.

DAA Well, it's interesting isn't because when you look back at the history of water, fizzy water, spas, this sort of thing were very, very trendy 100/150 years ago weren't they?

SM Yes. Because of the minerals in the water too, they were convinced they were good for you.

DAA Yes, And, of course, the stuff in the water apart from the minerals and the fizzy was probably lethal - probably cholera?

SM Well that's the [case]. What's his name, John Snow, is the man who found out why they were having the typhoid and cholera in London.

DAA Typhoid Mary?

SM They thought it was a miasma - the stink in the air.

DAA He took the handle off the pump, didn't he?

SM Yes, exactly. That's [why] he's the patron saint of drinking water quality.

DAA Yes. I mean this is the whole point isn't it that water people go on about water being pure and natural.

SM Well water is. It's just everything else that's in it.

DAA Well exactly.

SM And people go 'ooh [I don't like] the smell of chlorine' and you think 'well, if we take the chlorine out [then] we can certainly solve the population issue because if we stop chlorinating the water half of Perth would be dead in a month, so that'll be good' [because] people say 'the reason you're running out of water is because the population's too great - what are you doing about it'? I used to think 'well, stop chlorinating'.

DAA People say to me 'you can taste the chlorine in the water' and I used to [say 'good'].

SM Exactly.

DAA Oh well, you and I are both cynics but we are engineers as well, aren't we?

SM Indeed. Water was great fun [with] lots of dramas on the way. We had lots of dramas. There was - apart from the cutting back of people - we had the one project we'd been [working on]. We'd had some people doing some repair work on a covered reservoir in the wheat belt and we found out afterwards that there was asbestos potentially in the concrete that they'd been working on in some of the coating. Which was awful. We had to inform all the guys and everyone was panicking. We actually did some testing and it turned out the asbestos was - got to get this right - white asbestos not blue asbestos. Blue asbestos is the curly fibre.

DAA That's the really nasty.

SM The really nasty one. This was [white] It's the asbestos that's in putty. It's in a lot of window sealant putty - that had it in too and when it's ground it doesn't [become a hazard]. The particles are not that [dangerous]. We didn't actually expose people to anything that

bad as it turned out but we didn't know that for a while. That was really awful.

Also, we had a fatality. I hadn't been CEO very long when a chap who worked for us - he'd come back to site - he'd come back to a water treatment plant after hour[because] he thought he'd left something running, a pump running, had got up on a high walk-way. It was a triangular piece of grid-mesh and someone had not put the clips in properly and when he stood on the edge of it to reach in to do something on a tank it failed and he went [down] - fell down. He wasn't killed straight away and he managed to call with his mobile to call his supervisor who got out to site and called an ambulance but he died in the ambulance. And that was terrible that was. I'd only been CEO for maybe four or five months when that happened and that was terrible. It was just terrible. We did a major change to all our grid mesh procedures and did changes everywhere. Did a lot of work with the team. I had a strong safety push in Clough and this was just awful so we set out that we had to make sure that that couldn't happen again.

DAA Alright now you worked in private enterprise and you worked with the Water Corporation which is a government trading enterprise? What's your preference?

SM Well I don't think the model matters. It's the people that matter not the model. The government trading enterprise is a wonderful model but it's not used properly at all. It was set up after the Hilmer Report to mirror private sector competition so [that] it would be as if a government agency was acting like the private sector with no advantages or disadvantages so that it could be sold off to the private sector or compete. The government never did the selling off or competing bit so and gradually the GTEs have been pulled in so the Water Corp now is way more of a government department than it was when I took over. When I took over it was more of a government department than when Jim had [started] when it was founded.

The Water Corp was originally founded to be very 'arms-length'. Ministers have come in [and] the new GT E reform that the state government have done - and I say 'reform' in inverted commas - means that full budgets go to Estimates [Committee] so that Ministers can now say 'I want you to spend more here, less here' [while] previously they had to go through the Boards to do that. So, there's a lot of interference [and] I don't think they're operated at arms-length. I think if the GTE model was working as it was designed to work it would be better. I don't like the government department model. I don't think it gives the state the most efficient or the most cost-effective business.

But it's the people. Water Corporation has wonderful people. People who - because it's a whole of state agency - people who've spent their careers in water and really are world experts are in the Water Corp because there was nowhere else to go for a long while. When the big boom was on the mining companies were poaching a lot of our good water people because all those mining companies ran their own water and waste water in the bush. Some people left not [unwillingly] and some people wished they hadn't left but the Water Corporation does have some very good people. Some of the regional operators, these are people they've been in the community, it's their town [and] they know that if they get it wrong people will get sick. If the waste water's not working people could get hurt. They take it very seriously and they see servicing their community as sort of a calling which is fantastic.

DAA Yes indeed. I spent my career in electricity and gas supply and we were the same.

SM Indeed, and they're lovely people. You go bush, do laps of the regionals. It's great fun. They're great people, lots of fun, really and they've all got [lots of service]. Well, the Water Corp has a '30 Year Club' and I don't know if they're continuing with this but it used to be way back that once you were in the '30 Year Club' there was a big

dinner every year. It got too unwieldly so when I took over as CEO 27% of the Water Corp was in the '30 Year Club' which is outrageous. What it was, we'd have a really flash dinner the year you joined the '30 Year Club' and the year you retired, when you retired, if you were already in the '30 Year Club' when you retired we had it and it was a lovely. This was a big dinner. We'd spend up. It was what my girls would call 'a prawn cocktail dinner' - very old-fashioned dinner. You'd have a nice meal with prawn cocktails, there'd be a little corsage for the ladies. It was very formal old-school dinner and we'd spend [ages] getting organised. I had one girl in the comms group would spend ages [and] she'd contact all the people coming and we'd get old photos and we'd do a little 'this is your life' about them.

One year there were a lot [of people involved and] we had to split it into two events. We would do a short 'this is your life' when you hit the '30 Year Club' and [for] the people, as they retired, we'd do a bigger talk and there'd always be photos of them when they first joined. You know, where they've got the bad moustache and the body suit, and the long hair, and they were all skinny and then they get fat, and then they get skinny and then with the fish. And it was lovely.

That was always very, very good. You would honour the guy who had operated a pumping station out of Kalgoorlie for the last 32 years in exactly the same way you'd honour a retiring senior executive and it was fantastic. You'd fly them and their partner in. It was a big deal and I think what was very special about the Water Corporation was that respect and I really hope that continues although I have my doubts.

DAA Okay, we'll just pause there.

7 DAA Now Sue, you would have been involved in the Engineering Profession for quite a long time?

SM Mhmm.

DAA What awards did you receive? Any?

SM I've got some awards in water. I was presented with the 'Sir John Holland Award Civil Engineer of the Year' award in 2013 I think it was, and I got the 'International Women in Water' award in 2014, and I've had numerous awards through the universities. I was very amazed and surprised this year to be made a 'Member of the Order of Australia' and 'Officer of the Order of Australia' so I've now got AO post nominals. [it was a] lovely event at Government House. It was very moving actually and very humbling [and] I was very surprised.

DAA It's nice to be recognised?

SM Very, very amazing. I think the learning is to make sure you nominate other people because you realise what a special thing it is and how important it is that you do that. I've had plenty of recognition along the way which has been very nice but I always felt a little bit fraudulent because it's often recognition on behalf of what the Water Corporation had done - and the Water Corporation itself is not me it was this great group of people - but somebody's got to [represent it] I suppose. Somebody said to me once 'if it all goes wrong you are who they yell at so when it all goes right you should get the award', so, I think [that is alright].

DAA There's an upside and a downside?

SM Yes, that's what they said. If you're going to take the downside which you have no choice but to take you should take the [upside]. So that's nice.

DAA What about academic awards?

SM Academic awards? Oh, not in the latter years. I'm on the Senate at UWA but I haven't really got involved after I did the London School of Economics work. That was the last formal study I did so it comes out [like that] and that was amazing but I haven't done any formal studies since then.

I'm an Honorary Fellow of Engineers Australia - is that what it's called - and I'm a member of ATSE - the Academy of Science

Technology and Engineers - so I'm a Fellow of ATSE. So, lots of those.

I'm a member of CEW - the Chief Executive Women - which is a quite a small group of influential women who were running large organisations across Australia. CEW largely is about raising funds for scholarships and putting back to bring on the next generation of women leaders. Lots of things in that space.

DAA Alright so, coming back to your personal philosophy then - this is always the \$64,000 question - if you had your time again what would you do?

SM Mmm. I think I'd probably do much the same. I think if you enjoy what you're doing you get very caught up in it and most [of it] I enjoyed – 90% of what I've done I've really enjoyed. I love the project delivery and I love the fact that you actually see something happen for what you're trying to do and I think if you can see that you're making a difference it's inherently rewarding.

I think some jobs do actually draw the line between what you're doing and making a difference to the community. Sometimes it's quite a long bow between the two which would be hard. We always found at the Water Corp that when we did employee engagement surveys that the employees who dealt with an external customer, people doing debt management, they were the most engaged. People who worked in a country town they were very engaged and the further you were from a real person customer [like] someone in the bowels of a design office they were often least engaged because the value-add was harder to see. I've been quite lucky that most of the things I've done in construction or in Water Corp you actually could see the end of the product which gives you that sort of feedback mechanism. I think most of us just want to make a difference - a positive difference.

DAA I know when I spent a spell in system development and planning I was amazed that I could spend my time thinking about things and actually get paid for it.

SM Yes. It's a luxury.

DAA It was a luxury because when I'd been operational, I didn't have time to think about things at all.

SM I must admit [that with] the CEO role, the downside of a CEO role is that you never have time to think in a work situation. You have to think in your own time because you just come to work and someone wants a piece of you the whole time.

The thing with being a CEO it's like being an entertainer I always feel that people feed off your energy so you've got to be up, you got to go, go, go and lift everything all the time, and if you're talking to people if you are [not genuine] you're going to bring the whole thing down so perpetually you feel like you're the light entertainment all day. You come home at night sometimes and you're just exhausted because you've been trying to be up all the time. But I think it's your duty to be up and keep it up and that means the time to think and ponder doesn't happen then so when you're on leave, when you're doing something else, that's when you can actually think through some things.

I used to be a runner as a younger woman [and do a lot of it]. I'd run in the morning and that would [be] a run or walk in the morning and that would always be my thinking time and I'd plan.

DAA Alright so looking at young people today who are looking at coming in to, or are actually in to, an early career [as] engineers what would your advice be to them?

SM My advice would be to have a go at everything [and] don't plan too much. I think a lot of young people now have got this [idea], you know, 'this year I'm doing this and next year I'll do that, and then I'll be level and then I'll do this, and then I'll have my 2.2 children' and

life doesn't work like that. When you first graduate when [someone offers] you anything, take it. If they say 'would you like to go bush' [then] go. Don't think about it too much. Don't analyse 'have I got skills or [not]' just do it for a while because a lot of people rule out things and they don't even know what they are [and] they don't even know what they like. If you do something and you don't like it you can always change but you should give it a go.

I would encourage people to be flexible and see what comes up because often opportunities are offered to you and you knock it back without even knowing that you've cut off something. So, I would have a generic plan for your life but not too detailed. Keep it flexible.

DAA I had a philosophy and still have for that matter, even at my senior age now, that if somebody offered me a job even if it was a really tacky job, I would take it because it was a challenge.

SM Yes, and often the challenging jobs are the ones you enjoy the most and often they're in an area where you think 'oh God, I don't know much about that' but you think 'well' - and this was my [attitude] with Harold Clough - Harold would [ask me and] I'd think 'Harold wants me to do this so he thinks I can do it so I guess I can do it'. Because you'd have a lot of self-doubt and you'd think [you can't] but then you think 'oh well'.

DAA Mmm but somebody [has] confidence in you?

SM Somebody thinks [so]. I mean every now and then you'd see someone who you thought was an absolute idiot doing a job and you'd think 'well, if they can do it I'll be able to [it, and] that'll be alright'.

DAA Alright, well this also goes to the core of it really?

SM Mmm.

DAA You're obviously a female so if you were looking at young women who were looking at engineering what would your advice be to them?

SM I would say give it a go and have a go but don't be don't be too precious. You have to understand that some of the people you're

working with are older men and some of the older men - most of them - are not trying to put you down or be patronising but they might come across that way. People are sometimes protective of young women and in being protective they don't offer them the opportunities they should. They say to themselves 'I'm not going to offer her a country posting because she won't want to go to the country she will want to stay in Perth' and that's wrong. What you need to do as a young woman in engineering is go out there and do things but make it really clear to the men around you that you're up for whatever comes. Don't let them look after you too much. Don't be rude and push back. Understand that most people are out to help you but don't also don't let them protect you too much. Make it really clear you're up for it.

I think resilience is important for men and women you know.

Engineering's a job and the engineering solution is the least of your problems. It's about getting the community on-side. I mean these days there's 'nimbyism' and nobody wants anything built close to them. Nobody wants change. You try to build anything and there's environmental push back. Everything that you build has some form of impact and it's trading off this impact with that impact so there's always going to be push back.

Getting government approvals is hard. Every business private and government is trying to do more with less. There are all these issues out there and I see less and less resilience in our young people coming through in general so I think what you have to do is roll with the punches and understand that often changes and pressures they're not about you personally - they just are. Don't take it too personally and over-analyse it. Just have a go.

DAA I adopted a philosophy many years ago and it certainly paid off for me was that I would prepare myself for opportunities that came my way so that if they came my way [then] I could take them. If they didn't [then it didn't matter].

SM It's not going to hurt you, well [not] often, and often the preparation for those opportunities is useful out of work anyway.

DAA Yes, it is. Alright, and on that topic itself you would have had a life outside work? What did you do with yourself?

SM Well I had three kids and was working about 100 hours a week - and it always sound flippant to say that - for the last 30 years or so my hobby was bringing up my children. But that's probably a pretty full-time hobby so I didn't ever have very much spare time.

DAA Oh well, it's a pretty full-time job.

SM I like to exercise I used to [walk] I like walking and do a lot. These days I do a lot of walking groups and we do a lot of walking holidays so lots of things. When the kids were small, we'd always try to go away in the holidays and do good things. I always [thought that] if I was going to be 'a neglectful mother' and work and then the least we could do is have decent holidays together. So, that was always good. I don't know [but] it goes really fast if you enjoy what you do, you know. It's Monday then it's Friday then it's Monday then it's Friday and then it's Christmas.

DAA You're just busy, busy?

SM Yes.

DAA I remember when we got together quite a few weeks ago now to talk about this project you were just about to go to India?

SM That's right,

DAA What prompted that?

SM It was a very good friend of mine the guy I shared a house with for years and years. We were in a share house Bruce and I [and] he married an Indian girl who was working in Perth at the time and it was [her] 60th birthday so she was having her party back in Kerala and we all went back - 52 people came from Australia for her party - huge party on the beach in Kerala. It was great fun so that was pure

indulgence but then I met some other friends in Scotland and we walked from Fort William to Inverness. We walked across the Scottish Highlands.

DAA Oh, wow. I'd love to do that.

SM It was fantastic but tragically, see, I have no toenails from my boots. I had a problem so my career as a 'foot model' is over.

DAA Over?

SM Never actually got off the ground - but still.

DAA Well my career as a bushwalker is over too but I walked much of WA.

SM It's lovely. It's great isn't it?

DAA Yes.

SM I think a walking holiday even if you're just doing a bit of the Cape to Cape or a bit of the Bibbulmun - anything like that - you just come right down to being part of where you are.

DAA Fundamental stuff. I've walked the Bibbulmun with my son and a mate and his son and it brings you right back to basics and at the end of three or four days of walking, something like that, you've sorted out a lot of things in your head.

SM Yes, you do. You do. We've done a few of those sorts of the upmarket walking holidays where you someone moves your bag in the day and you just have a day pack [to carry]. We did one last year in France where everywhere we stayed had a one-star Michelin restaurant which was sort of from the sublime to the ridiculous. You were walking 20-odd kilometres a day across the Dordogne in France and then stay somewhere at night with this lovely meal and then you'd do it all again. That was a bit that was probably a bit flasher than I really like. The one in Scotland was a bit more rustic.

DAA When I look back I don't how I did what I did. I studied and I worked and I ran Scout troops and things like this but I always have memories

of running Scout troops. You know, really, really good fun and I'm still involved.

SM And getting kids out into the bush is fantastic too.

DAA Fantastic, yes.

SM I was a Girl Guide for many years.

DAA Were you?

SM In Robin's Patrol. I was Patrol Leader / Patrol Captain and it was in Dalkeith with Mrs the Guides but none of my girls were Guides, they weren't very interested.

DAA Do you think being a Girl Guide was helpful?

SM It was fun.

DAA Didn't do any harm?

SM Didn't do any harm. I learnt how to tie knots and make those [signs like] 'we have gone home' Things in the bush - and all those [types of things]. Because my birthday is the 22nd of February which is Lord and Lady Baden Powell's both of their birthdays and it's 'Thinking Day' in the Scouting movement as you know.

DAA Indeed.

SM That was the only downside of being a Guide there was always some sort of Guiding event on my birthday. I'd want to have a party and instead I'd be dressed in some other country's national dress doing a folk dance and raising a in some Guiding event somewhere. But that was a long time ago.

DAA You never became a Guide Leader or anything like that?

SM No. I stayed in the Guides probably until I was about 14 and then my younger sister when she became a Guide, I went back with them a few times and helped with the camps but that was in High School and that's a long time ago. My uncle, Alan Wager, was a Scout and very

involved with the Wembley Scouts. He did lots of [work with them].
He passed away a few years but uncle Alan was very involved.

DAA Wembley was it?

SM Mmm.

DAA What was he with Wembley? Don't know?

SM He seemed to run everything. He was a pharmacist in Wembley.

DAA I'll check him out on the archive.

SM Okay. And Ross Hughes his father was very big in Scouting too.

DAA Alright now, have we missed anything?

SM Oh, who knows? Who knows?

DAA When we come to check the transcript, you'll be able to let me know.

SM Mmm. I don't know that it's that interesting for anyone.

DAA Well you'd be surprised. In 200 years, it might be?

SM Yes, 200 years' time I [guess] there'll be a hologram of us all
somewhere [by then].

DAA Okay, well thank you for talking to me Sue.

SM You're more than welcome.

DAA It has been very interesting.

SM It's been good.

DAA What we'll do now is we'll prepare the transcript and I'll come back
to you in a few weeks and ask you to check it over.

SM Mhmm. Okay. So, you just email it to me?

DAA I'll email it to you unless you want it as a hard copy?

SM No, no I can check it online.

DAA Okay and then once you're happy with it we'll get you to sign off [the
release form].

SM And you email it in PDF or in a form that I can edit?

DAA I'll send it as a Word document so you can edit it.

SM Okay then I can [edit it] but I'll track the changes so you can see.

DAA Yes, okay.

SM No problem.

DAA Right, thank you.

SM Alright make sure you look after yourself and don't go leaping head first into concrete on a regular basis.¹

DAA I'll try not to.

SM If you're going to dive make it into the water not the ground.

¹ Interviewer had injured himself in a fall.